# Code Switching in School-aged Children:

# Elicitation and Typology

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# *Section I - Introduction*

One of the earliest definitions of bilingualism comes from Bloomfield (1933:56), who defined it as "native-like control of two languages". Mackey (1962:52) made the point that the definition of bilingualism should include "not only the use of two languages, but of any number of languages", and described bilingualism as the "alternate use of two or more languages by the same speaker". More recently, Grosjean has defined bilingualism as "the regular use of two or more languages"… in everyday life (2008:10). For the purpose of this review, bilingualism will be presumed to refer to multilingualism as well.

Grosjean (1985c, 1989, 2001) describes bilinguals as using two modes of language interaction, the first being that in which the bilingual is speaking either of their languages in a monolingual conversation, and the second in which the speaker is speaking to bilinguals known to speak their same two languages. In this context, the speaker is allowed to mix languages.

Code switching is generally used as the term which refers to this process, in which speakers move from one language to another within a single discourse, sentence or constituent (Poplack, 1980:583). Historically, this phenomenon was viewed negatively, often considered to be indicative of linguistic confusion or linguistic deficiency, with switching between languages characterized as occurring randomly (Lance, 1975:143). In a study by Haugen (1977:97), a visitor from Norway was reported to describe the speech of Norwegians in the United States as "no language whatever, but a gruesome mixture of Norwegian and English, and often one does not know whether to take it humorously or seriously". More recently, in a review of the topic, Wei (2000:21) states, "unfortunately, although switching and mixing occurs in practically all bilingual communities and all bilingual speakers' speech, it is stigmatized as an illegitimate mode of communication, even sometimes by the speakers themselves". In my own study, a Swiss-German/English bilingual was reported to have told her mother that she was upset by the code switching discourse of one of the examiners, and that she had considered interrupting the session to tell her not to talk that way, as she feared it would "mess up the results of the research"!

In contrast to the earliest impressions of code switching, research in the last 30 years has shown code switching to be a rule-governed, systematic mode of discourse, which is subject to

constraints upon both: a) which forms bilingual speakers may or may not mix, and b) where they may or may not mix them. Current attitudes toward code switching, at least by those who study language, are that it indicates of a type of competence between languages requiring a significant amount of syntactic and semantic skill.

## 1.1 Types of Code Switching

There are several types of code switching described in the literature: the two most commonly cited are intersentential and intrasentential (Appel and Muysken, 1989:118). Intersentential switches are those which occur between sentences. Also included in this category would be those switches which occur between a complete sentence and a tag question. (Although Poplack (1980) and Appel and Muysken (1989) considered tag switches to be a separate category, tag switches are considered in this study to be subsumed under the category of intersentential switches, see Nakamura, 2005:1684). Intrasentential switches are those which occur within a sentence. There are several subtypes of this set, the most common of which is a single word switch, most often using nouns (Berk-Seligson, 1986:325-6, Scotton, 1988b:73, Nortier, 1980: 141). Other types of intrasentential switches are switches within or between phrases, switches in mazes, (defined as repetitions, pauses and rephrasings) and hybrid switches, which occur within a single word. These subtypes of intrasentential switches will be described in greater detail in the typology section of this paper. Examples of each type follow:

Intersentential – a switch of language between sentences:

"Isch nitt do? *Vous pouvez lui laisser un message?"*

"He's not there? Can you leave him a message?"

Alsatian/*French*, from Gardner-Chloros (1991:98)

Tag-like (a subset of intersentential switching):

"They look beautiful, *deshoo?*"

"They look beautiful, right?"

English/*Japanese*, from Nishimura (1997:101)

Intrasentential – a switch within a sentence:

"…putzen Zähne *con Jabón*…"

"…brushing teeth with soap…"

German/*Spanish*, from Redlinger and Park (1980:341)

Single word (a subset of intrasentential switching) –

"…and the froggie's getting *nass.*"

"…and the froggie's getting wet."

English/*German*, from Redlinger and Park (1980:346)

A third type of switching, called 'calques' in this study, is that in which the word order or grammatical structure is contributed by one language (for example, Language A), and the words or morphemes themselves are contributed by another language (Language B). On the surface, the phrase or sentence may look like a 'pure' example of Language B, but the word order and/or grammatical structure will reveal the underlying Language A. This can occur with words, idioms, phrases or whole sentences. Selected examples of calques follow:

Word-level: '*Wolkenkratzer', 'rascacielos'*, or *'gratteciel'* for English 'skyscraper'

*German*, *Spanish* and *French* word-for-word translations

from Romaine (1989:56)

Phrase: "He's *after telling* a lie"

"He's told a lie" (after + present progressive verb = past tense)

*Irish*-English, from Odlin (1989:14)

Sentence: "*Afflu* Ø ambuláns, Ø mil liras.

(Even (the, a) ambulance (is, costs) a thousand liras.) (Hebrew syntax)

*Hebrew*-Ladino Spanish, Berk-Seligson (1986:331)

Depending on the theoretical perspective of the examiner, this phenomenon has been described using a variety of terms: interlanguage (Selinker, 1972), transfer (Odlin, 1989), interference (Grosjean, 1982), convergence and/or matrix language turnover (Myers-Scotton, 2002, Smith,D., 2006), covert code switching (Schmitt, 2000) and finally, loan translation or calques (Romaine, 1989:58). In order to use a theoretically neutral reference to this phenomenon, the term 'calque' will be used henceforth to describe this third type of switching between languages.

It was the original intent of this study to examine intra- and intersentential code switching only. However, review of calquing performance by the participants in this study revealed that calquing occurred with high frequency. The role of calquing in the bi- and multilingual interaction of languages in children was considered to be potentially significant. Calques were therefore included in the analysis.

*Terminology*

Not all investigators agree on terminology with respect to code switching. Other terms used to refer to this movement from one language to another within an utterance or between contiguous utterances are: language alternation, language mixing, and code mixing. With respect to single word switching there is also controversy. Some researchers consider single word switches not to be bona fide code switching but rather the transfer or borrowing of a word from one language into another. Distinctions are made with respect to whether or not the phonology of the switched/ borrowed word has been adapted to the phonological structure of the base sentence. (For example, most researchers consider the word *burrito* to be borrowed into English, since the speaker rarely uses Spanish pronunciation of the vowels or the trilled 'r'.) Other researchers do not see the distinction between single word code switching and borrowing as significant: Myers-Scotton (1992:104) for example, states that singly occurring forms, be they borrowed or code switched single words, are integrated in to the receiving language by means of similar if not identical morphosyntactic

procedures. This leads her to suggest that borrowed forms originated as code switched forms. All of these differences, of course, present a problem when analyses are compared to one another. It is imperative that definitions of switch types be clearly stated.

Ultimately, the theoretical perspective of the researcher has an influence on the terminology chosen in the discussion of code switching. For the purposes of this study, I will use the term code switching in light of the fact that it is probably the most widely used in the literature. Single words that have been adapted into the phonological system of the base language will be identified as borrowed words. Proper nouns will also be considered borrowings. Other single word switches will be considered as code switches.

## 1.2 Difficulties in Code Switching Data Collection

### 1.2.1 Low Incidence of Code Switching

There are many variables which affect the occurrence of code switching, among them psycho- and sociolinguistic issues. These issues will be discussed in greater detail in Section 2.2. The high number of variables that influence the bilingual speaker makes it difficult to compare occurrence rates among and especially between bilingual groups. Historically, (perhaps for this reason) incidence rates of code switching have not been considered to be an important issue. Very few studies report on frequency of occurrence of code switching, specifically in relation to non switched utterances in the same discourse. What is generally understood, however, is that the rate of occurrence is low.

### 1.2.2 Quantifying Incidence of Code Switching

At issue in the research of code switching is the fact that the incidence of code switched events is not predictable. Decades of research have begun to give a clearer picture of *where* code switching can be expected to occur or not occur, but we know significantly less about the question regarding the *when* of code switching occurrence.

Quantification of code switching is difficult because researchers over the years have defined code switching in different ways. In other words, the type of code switching being measured can certainly affect the outcome when quantification is attempted or reported. Some studies do not consider borrowings to be true code switching, others have included them. Other studies have considered intra- and intersentential switches together, others consider only one type. The vast majority of code switching studies either do not attempt to quantify incidence, or mention incidence

rates in passing. Those that do give quantified information report their findings according to widely disparate forms; Grosjean (1997a) reported code switching in terms of number of syllables in L1 and number in L2 for a bilingual story. In Zentella's (1978) study, the incidence of code switching in school aged children was reported in terms of number of switches per hour. It ranged from 0 per hour to 27 per hour, depending on the setting. Other studies have reported different rates, as can be seen in Table 1. Regardless of the details, it is clear that the rate of code switching occurrence is rather low. A large body of data needs to be collected in order to yield sufficient tokens of code switching for analysis, especially when quantification is a goal.

Table 1 provides a summary of a few studies which have reported incidence data. Note that not all of the studies reported incidence explicitly; some of the numbers here were extrapolated from other data provided in the studies cited.

**Table 1. Incidence of Code Switching (CS) in Reported Studies**

| *Researchers* | *unit of measurement* | *Frequency of occurrence* | *caveats* |
|---|---|---|---|
| Zentella (1978) | #CS/hour | 0/hr to 27/hr, depending on sociolinguistic context | ** |
| Grosjean (1997a) | Mean # syllables:<br>Compared syllables in English (CS and borrowings) to syllables in French (L1). Also recorded mean # of hesitation syllables. | 10x more CS with bilingual topics<br>mean # CS toward each addressee:<br>monolingual: 5/286 total syllables<br>bilingual A: 12/260 total syllables<br>bilingual B: 25/221 total syllables | *, ** |
| Bernardini & Schlyter (2004) | # mixed utterances/ total L1<br># mixed utterances/ total L2 | In dominant L: 0.28%<br>In weaker L: 4.6% | * |
| Pfaff (1979) | % mixed turns / total turns | 34% | * |
| Comeau, Genesee & Lapaquette (2003) | Mixing rate | Baseline w/parents: 1.89 - 48.35%<br>With low CS interlocutor: 16.43%<br>With high CS interlocutor: 40.88%<br>Trial 2, low CS interlocutor: 29.24% | *, *** |

*extrapolated from other data in study; ** CS numbers include borrowings; *** both inter-, intrasentential included as CS

# 1.3. Current Data Collection Methods for Code Switching

### 1.3.1 Observational Collection and Limitations

Even before the term code switching was coined, examples of it appeared in bilingual studies. In a review of what could be called the 'prehistory' of code switching, Benson (2001) describes several observational reports written largely in diaries and notes of the investigators. See Smith, M. (1935), and Leopold (1939, 1947, 1949a, 1949b), which are case studies of the bilingual development of children. Barker (1947, 1972) reported his research with a more sociolinguistic focus, but the data was most likely collected by observation and use of diaries and notes as well. Though these studies focused primarily on bilingual issues, examples of code switching are present in their data. Diaries and notes of course have their limitations; a diary writer relies on recall of utterances and events and by nature is not able to capture the entirety of the communicative event. With regard to observational notes, a picture is evoked of a linguist sitting incognito in the neighboring booth in a cafe, copiously taking notes. The note taker was not always capable of recording everything that was of linguistic interest. As technology advanced, audio recordings began to be used to store data; this allowed for increased accuracy and reviewability of data by other researchers. Current technology allows for both written transcripts and digitized audio data to be stored in databases available for review by researchers as well (MacWhinney, 2000). While there is general agreement that observation in the naturalistic environment provides valid data, there are two problems with this method: first, as will be described in the following paragraphs, code switching occurs most when the speakers are conversing with members of their own sociolinguistic network and it is much less likely to occur with an outside observer. Second, naturalistic collection is very time consuming, in light of the low incidence rate of code switching.

In his pioneering work on sociolinguistics, Labov (1972:79) described the contrast between 'casual speech' and what he called 'careful speech'. Careful speech was the speech that was elicited in response to a formal interview, or in conversations with people of higher social status. He described casual speech as "the everyday speech used in informal situations, where no attention is directed to language" (1972:86). Casual speech occurred in informal settings; speech became increasingly more careful as the language setting became more formal. He further observed that speakers were more likely to use a casual style of speech with others whom they considered to be part of their sociolinguistic 'in' group. Labov focused his research on the differential use of contextual styles in English, or what one may call style-shifting. Gumperz (1976:8) studied code switching, and described the same 'in' group variation: "the tendency is for the ethnically specific, minority language to be regarded as the 'we-code' and become associated with in-group and informal activities, while the majority language serves as the 'they-code' associated with more

formal, stiffer and less personal out-group relations". Because many commonly used in-group forms were used only in the absence of the interviewer, most researchers have endeavored to capture as many examples of spontaneous language as possible, in order to describe what speakers use "in the real world". Often the successful collection of naturalistic data requires that the investigators themselves must be a member of the in-group. Sankoff and Poplack (1981:9) comment on the collection techniques employed in Poplack (1981) and note that: "the in-group status of the interviewer coupled with relatively unobtrusive data gathering techniques yielded a body of code switching data qualitatively more diverse and quantitatively more numerous than that which could have been elicited by an outsider to the community." Since speakers adjust their language production in response to the conversational environment, it is likely for this reason that the majority of code switching research today describes collection of data as observation and recording of subjects' conversations in the "naturalistic environment".[1]

Numerous studies describe 'observation in the naturalistic environment', but do not make reference to the amount of time expended to collect the data. Typically, the examiners who have observed speakers in the naturalistic environment must gather large amounts of data and hope to 'catch' the speakers when they code switch. Additionally, such observers must also take precautions so that their very presence does not become a variable which would reduce the likelihood of switching. (See Labov, 1972 for a description of the *observer's paradox*.)

Sankoff and Poplack (1981:9) refer to the difficulties in gathering code switching data: "…switches are not easily elicited…observation is exceedingly difficult, given the precarious balance of situational factors which must be sustained in order to assure the considerable volume of speech in the code-switching mode necessary for any statistically valid analysis…" It appears to be generally understood that the collection of code switching data requires a significant expenditure of time, not to mention research monies. Very few studies have discussed the amount of time required to collect the data they report. Table 2, part A illustrates the amount of time required for a sampling of studies which have been performed to date, using the method of observation in the naturalistic environment. Note the differing terms utilized to quantify the rate of occurrence of code switching.

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1. Studies which focus on syntactic constraints often use grammaticality judgments and interview of their subjects. This is an example of assessing competence in grammar, rather than performance. For the purposes of this study, I will focus on language performance, since my focus here is to observe code switching behavior and investigate the link of behaviors to underlying factors such as elicitation condition and proficiency.

### 1.3.2 Elicitation of Code Switching Data

Labov found that it was possible to elicit *some* casual speech in the context of an interview situation. Examples given were described as a form used when the constraints of the formal situation were overridden, or as Labov stated, "not in response to the formal situation, but in spite of it". Some situations which reportedly gave rise to more casual speech were generally those in which, rather than the interview itself, more focus was given to the content of the conversation, such as emotionally charged topics, speech addressed to a third party, speech before or after a formal interview, or in narrative language samples.

Gutiérrez-Clellen, Simon-Cereijido and Leone (2009) analyzed code switching in typically developing and language impaired bilingual children. Their data were taken from naturalistic recordings, but they noted the need for "alternative approaches to gather code switching data" (2009:104). In an effort to collect data "in spite" of an interview situation, some investigators have begun to explore scenarios which will elicit production of code switching. Elicitation paradigms, if they could be shown to produce valid examples of code switching, could greatly reduce time necessary for data collection, increase efficiency of investigators, as well as provide a way to focus upon a particular linguistic structure or social interchange. Noting the lack of such studies, Grosjean (1997a) suggested that it ought to be possible to elicit mixing under experimental conditions. He conducted a study in which the topic and the person being addressed were varied, in an effort to examine the language production strategies of 15 French/English bilinguals. He found that the highest percentage of code switches and borrowings occurred under two conditions: in the first condition, subjects were retelling a story which had been presented in French but contained code switching when references were made to typical American topics such as garage sales or Thanksgiving. In the second condition, subjects were asked to describe a cartoon in French which depicted scenes typical of American life and not typical of French situations. These 'bilingual' stories and cartoons elicited about 10 times more English in the form of code switches and borrowings. Subjects were to summarize the stories or describe the cartoons to three hypothetical listeners; the subjects were told they were participating in a 'telephone' experiment, and their descriptions were recorded and transcribed. Descriptions were given to the subjects in such a way as to create three distinct perceptions of the supposed addressees; a monolingual French speaker not fluent in English, Bilingual A, who was described as a fluent bilingual but unlikely to code switch, and Bilingual B, who was supposed to be a fluent bilingual having a positive attitude toward code switching. Results indicated that Bilingual B was addressed with a significantly higher frequency of code switching. Grosjean does not describe his subjects beyond stating that they were French/English bilingual

participants who lived in Boston. I presume they were all adults, the assumption being that if they had been children this fact would have been specified. It would be useful to know whether such types of elicitation are effective with children as well.

In a study by Bernardini and Schlyter (2004), the code switching behavior of 5 bilingual children learning simultaneously was examined. These children all displayed marked dominance of one language over the other. (Note: 2 subjects came from different data sets and were analyzed differently, their data were considered supplementary.) Elicitation of data for the other three children proceeded thus: the subjects were observed in conversations with a parent who spoke their stronger language and subsequently in separate sessions with a speaker in their weaker language. Utterances were coded as either L-dominant, L-weak, or mixed. When the subjects were speaking their weaker language, they were more likely to code switch (called mixed language in their study) than when speaking the stronger language.

Toribio (2001) presented subjects with two code switched fairy tale narratives and asked the subjects to complete the story using code switching. Since the subjects were aware of the focus on code switching, the data is not considered naturalistic, and would not be compared to results in this study, but it provides an example of a successful elicitation paradigm. Table 2, part B illustrates methodologies and amounts of time required to collect code switching data in a small sampling of studies to date utilizing elicitation.

**Table 2. Methods of Data Collection for Code Switching Production**

| ***A. Observational:*** | | | |
|---|---|---|---|
| *Method* | *Researchers* | *Sample* | *Time to collect data* |
| Diaries | Leopold (1939, 1947, 1949a,b)<br>Smith, M. (1935) | Case studies | ~ 10 years<br>years |
| Audiotapes in home environment | Oksaar (1976a)<br>Schmitt (2000)<br>Vihman (1998) | Case study, n=1<br>Children, n=5<br>Children, n=2 | 2 yrs, 3 sessions/wk<br>1 month<br>4 years |
| Audiotapes carried in backpacks | Zentella (1990a) | Children, n=34 | Approx. 2 years, 103 hrs analyzed |
| Recorded conversations and/or interviews in the naturalistic environment | Gardner-Chloros (1991)<br>Halmari (1997)<br>Myers-Scotton (1993) | Adults, n=20<br>Ages 8-91, n = 21<br>Adults, not specified | 13-20 hrs analyzed<br>26 hrs<br>not specified |

| ***B. Elicited:*** | | | |
|---|---|---|---|
| Narratives, changed topic and addressee to elicit CS in narratives and picture descriptions | Grosjean (1997a) | Adults, n = 15 | 1 session per subject |
| Recorded conversation, varied frequency of CS by interlocutor, first session 15% CS, second session 40%, third session 15% | Comeau, Genesee & Lapaquette (2003) | Children, n = 6 | 2 baseline sessions, 3 collection sessions per child;<br>9 to 13.5 hours collected, 6 hours analyzed |
| Prompted narratives. Subjects were told to finish a CS presented story fragment using CS speech* (* not naturally occurring) | Toribio (2001) | Adults, n = 10 | 1 session per subject |

Comparison of Table 2, part A with Table 2, part B shows a clear reduction in the amount of data collection time required when comparing observational data to elicited data.

### 1.3.3 Limitations in Code Switching Studies

To date, the majority of code switching studies have focused on adults, both in observation and elicitation. Since code switching is a considered a component of competent bilingual discourse in adults, the study of how children use code switching can provide insight into development of bilingual proficiency. With the exception of Zentella (1978), most studies of code switching in children have been limited to case studies of individuals or small groups. Additionally, the majority of child studies such as Bernardini and Schlyter (2004) and Comeau, Genesee and Lapaquette (2003) have focused on preschool children, and although the data obtained may provide information relevant to development of semantic competence in the bilingual, such data are less suited to syntactic analysis. Larger scale studies, including children of varying levels of bilingual language development, are necessary to add to the body of understanding in the area of child code switching and its role in bilingual acquisition.

## 1.4 Bilingual Mode Theory

Grosjean (1985c, 2001, 2008) has identified what he calls the language mode continuum for bilinguals. Language mode is defined as "the state of activation of the bilingual's languages…at a

given point in time" (2008:39). In the monolingual language mode, the language being spoken is activated and the bilingual's other language is deactivated, although Grosjean argues that it can never be fully deactivated. In the bilingual mode, both languages are activated, and a base language is chosen. The other language is allowed to be called on in the form of code switches and borrowings. Switching is considered to be primarily a function of the degree to which situational cues activate the bilingual or monolingual end of the continuum. The issue of relative strength in one language compared to another is not a prominent part of the model. Grosjean considers that the bilingual uses each of their languages in different situations and for different purposes.

Language mode is, therefore, important to consider regarding collection of data. Activation of the bilingual mode appears to yield increased amounts of code switched utterances, both for observational collection and elicited data. Grosjean (1998b [2008]) describes a problem encountered when language mode is not considered: a given utterance may be misidentified. If a speaker is truly in monolingual mode and produces an utterance which incorporates the non-activated language, one could correctly classify the utterance as interference. Grosjean calls this an "intrusion" of the deactivated language upon the language being spoken (2008:252). In this sense, the use of the less activated language is not legitimized by the mode of communication. However, the same utterance produced in bilingual mode would not be considered to be (inappropriate) interference, but a normal result of bilingual access utilized when the addressee is a known bilingual. This can become an important distinction when evaluating calques, which have been considered by some to reflect poor bilingual competence. Calques produced in bilingual mode must be considered differently than those produced in the monolingual end of the language mode continuum.

Treffers-Daller (1998) utilized variation in language mode in a study of a Turkish-German bilingual. By changing the addressees and context, she collected data from the same individual in three different positions along the language mode continuum, (toward the monolingual end, intermediate, and toward the bilingual end) and noted that the greatest amount of switching occurred in the condition which was closest to the bilingual end of the continuum. Treffers-Daller also discovered differences in the types of code switching used in the different modes; this will be further discussed in the following section on typology.

## 1.5 Typology

In this study, the term 'typology' will be used to refer to the patterns of use for various subtypes of code switching. Thus far, three types of code switching have been introduced: intersentential, intrasentential, and calques. Within these categories, subsets have also been identified. These subsets will collectively be referred to as code switching subtypes.

### 1.5.1 Difficulties in Analysis of Code Switching Subtypes

Analysis of frequencies or distributions of code switching subtypes is difficult, because not all studies consider the same types or subtypes. A review of the caveats from Table 1 reveals great variability in the types of code switching considered, even from a limited sampling such as the studies in the table. There is no consistency regarding whether intra- and intersentential switching are considered separately or together; some studies examine one type but not the other. Definitions of subtypes vary as well; single word switches, for example, are considered as a separate category (Nortier, 1989) a subset of intrasentential switches (Berk-Seligson, 1986), or a type of embedded language (EL) constituent (Myers-Scotton,1993a), depending on the investigator. Another subtype, calques, are either considered to be a sort of intrasentential switch (Sebba, 1998, Schmitt, 2000, Berk-Seligson, 1986) or are implicitly considered to be something other than code switches, evidenced by the lack of inclusion of calques in the analyzed corpus of many studies.

In some analyses, code switches are described in terms of which parts of speech the code switches affect (Zentella, 1978, Stavans and Muchnik, 2007, and many others). Other investigators have described subtypes of switches in terms of alternation of the languages involved or insertion of one language into the other (Huang and Milroy, 1994; Bentahila and Davies, 1995; Myers-Scotton 1993a). Alternation and insertion will be discussed in greater detail in section 1.5.2. In this view, the distinction between intra- and intersentential switching can be lost, since alternation refers to both alternations between sentences (intersentential switches) and within sentences (intrasentential switches). Insertions can include single words or whole phrases. All of these methods of characterizing code switching types have merit – the difficulty arises when one compares a given study to another.

### 1.5.2 Comparison of Code Switching Types Among and Between Groups is Uncommon

In the Treffers-Daller (1998) study mentioned above, language mode was found to elicit different types of code switching, depending on the context and interlocutor the speaker was addressing. When the bilingual speaker was in a mode closest to the monolingual end of the language mode continuum, there was very little switching. In an intermediate mode the speaker used a different type of switch, described as ‘peripheral’, which appeared to fulfill a pragmatic function. These switches also contained various pauses and were described as flagged switches. In the mode closest to the bilingual end, in addition to more frequent switching, the speaker used a qualitatively different type of switch. The switches were both intra- and intersentential and occurred without pauses and hesitations. As such, they were referred to as fluent switches.

Treffers-Daller concluded that the language mode continuum might provide a new perspective from which code switching patterns among and between different groups of speakers could be compared.

The Treffers-Daller (1998) study and the work by Grosjean (1985c, 1997a, 2001, 2008) have established that the kind of code switching used by any given speaker can vary in relation to their language mode. Equally of interest is whether different kinds of bilinguals produce different subtypes of code switching. I have to this point referred to subsets of code switching types as subtypes. In order to avoid confusion, I will henceforth refer to subsets of bilingual speakers as *subgroups*.

Although there are relatively few studies which compare speaker subgroups' use of subtypes of code switching, Poplack (1980) and Sankoff and Poplack (1981) compared fluent and nonfluent bilinguals. The term 'fluent' bilingual was intended to refer to those bilinguals with stronger proficiency in both languages. I will here refer to 'fluent' bilinguals as proficient, and 'non-fluent' bilinguals as non proficient. They found that proficient bilinguals tended to use intrasentential code switching, while non proficient bilinguals tended to switch intersententially (including tag phrases). They hypothesized that non proficient bilinguals switched between sentences because these switch points were less 'risky'; this allowed them to "participate in the code switching mode although they lacked the bilingual ability in L2 to engage in more complex switching" (1981:33). Accordingly, proficient bilinguals were seen as more skilled code switchers, being able to switch freely at syntactic boundaries within sentences. Becker (1997:7) asserted that this result supports the idea that rather than being an indication of deficiency in either of the speaker's two languages, code switching is an indicator of bilingual ability. She further asserted that non proficient bilinguals have not yet acquired this ability.

In addition to the Poplack studies cited above, Nortier (1989:115) also reported that more proficient Moroccan Arabic/Dutch bilinguals used higher numbers of intrasentential and single-word code switches. In contrast, based on the results of her study of proficient and non proficient Hebrew/Ladino Spanish bilinguals, Berk-Seligson (1986) concluded that there was no significant difference between groups in the amount of intra- or intersentential switching used.

Additional studies have considered different types of proficiency in speakers. Huang and Milroy (1994) compared code switching patterns of Cantonese/English bilinguals in three generations of the Tynesdale community in Britain. Speakers were identified as either Chinese dominant or English dominant. The authors discuss types of code switching in terms of whether it occurs in inter-clausal or intra-clausal locations. Two patterns of code switching were employed by

the two groups: insertional and alternational. Insertional code switching was defined as "a word or phrase… put into the grammatical framework of a clause…" (1994:37). Alternational code switching occurred "when two or more languages are used in turn in the same clause" (1994:37). Examples follow:

Insertional: keudei *brought up* ge….

"the children they brought up…."

Huang and Milroy (1994:40)

Alternational: nei yeo mo *any other relatives*?

"Do you have any other relatives?"

Huang and Milroy (1994:37, 41)

Chinese dominant individuals used insertional code switching almost exclusively. English dominant speakers used alternational code switching. Huang and Milroy concluded that bilinguals with different degrees of language preference and proficiency employed different structures of code switching: "the type of structural patterns evident in the switching was closely related to the speaker's general language preference as well as his or her bilingual competence" (1994:42). Though not explicitly stated, the authors seem to assume that the Chinese dominant had strong Chinese/weak English, and that the English dominant were strong English/ [unspecified] Chinese in skill. It is unfortunate that the authors did not specify the speakers' skills in the two languages relative to each other.

Bentahila and Davies (1995) conducted an interesting study in Morocco, in which they examined intrasentential code switching for older, relatively balanced Arabic/French bilinguals and compared it to younger adult, Arabic-dominant (unbalanced) bilinguals. They, too, report a difference in the patterns of code switching used in two groups of adult bilinguals. Their results showed that balanced bilinguals made most frequent use of whole clause switches (defined as switches between independent sentences, coordinated clauses, and between a main and subordinate clause). Unbalanced bilinguals used switching of whole noun phrases as their most

common type. Also notable was the unbalanced bilinguals' use of word-internal switching in verbs: a French verb used with Arabic grammatical morphemes, which is a violation of Poplack's Free Morpheme Constraint, (see Section 2.1.3). Word-internal switches were in fact the third most frequent type of switch for the unbalanced bilinguals, 9.3%, compared to 2.2% of switches for the balanced group. Because the method of analysis for this study was different than that of Huang and Milroy above (1994), similarities between the two sets of data may not be readily apparent. However, if one were to consider Huang and Milroy's alternational code switching to be a sort of interclausal alternation, then Bentahila and Davies' results might be considered to show the same type of alternation. In a parallel manner, the insertional nature of Huang and Milroy's less dominant group is similar to Bentahila and Davies' unbalanced group, in that higher frequencies of smaller constituents are inserted, most notably noun phrases. Bentahila and Davies summarize their impressions by stating that the balanced bilinguals' use of whole clause switches "produces a style of switching in which French and Arabic seem to fulfill almost equally important roles…In discourse like this the two languages seem to have similar functional loads, with complete statements in one language *alternating* with those in the other", (1995:82, italics mine). In contrast they describe the unbalanced bilinguals' use of French as "not so much for entire statements as for smaller constituents, notably noun phrases…Here we have what seems to be basically Arabic discourse, with frequent but brief shifts to French" (1995: 83). They go on to mention that Nait M'barek and Sankoff (1988:150) have identified the 'noun plus determiner' structure not as code switching, but as a type of language mixture they call constituent *insertion* (italics mine). Whether or not this particular form is to be called code switching, it is notable that the concepts of alternation and insertion appear in Bentahila and Davies as well as in Huang and Milroy.

In the above studies, code switching subtypes were associated with proficient or non proficient subgroups of bilingual speakers. Although the particular characterizations of code switch subtypes differ (intra- vs. intersentential, intra- vs. inter-clausal, alternational vs. insertional), these studies illustrate that subtypes of switching can occur with different frequencies in relation to the proficiency of the speakers.

**1.5.3 Lack of Comparison between Groups of Bilinguals who are Still Acquiring Languages**

The preceding studies have all discussed code switching in adults. There is far less information regarding code switching in children. A few studies which have focused on child code switching will be reviewed in Section 2. In addition to classification of speakers into subgroups based on proficiency, bilingual children can be subdivided on the basis of whether acquisition has occurred simultaneously for the languages involved, or sequentially. Because children are still in the

process of acquisition, which has not been fully achieved, children can be accessed at various stages of bilingual development. It is plausible that the subgroups (based on proficiency and/or type of acquisition) may display different patterns of code switching use for different stages. Scrutiny of code switching patterns in developing bilinguals may provide clues to the similar and/or different strategies used in acquisition. As such, the developmental role of code switching in bilingual acquisition can be explored when subgroups of bilingual children are studied.

While code switching in simultaneous bilingual children has begun to appear in the literature (Vihman, 1988, Kwan-Terry, 1992, Bentahila and Davies, 1995, Gawlitzek-Maiwald and Tracy, 1996, Bernardini and Schlyter, 2004), far fewer studies have addressed code switching in bilingual children learning sequentially (Bolonyai, 1998, Schmitt, 2000, Nakamura, 2005). However, there is a lack of study in the literature which compares or contrasts the two groups.

## 1.6 Patterns of Code Switching Use

### 1.6.1 Identification of Patterns used by Subgroups Based on Proficiency or Acquisition Type

Besides the studies which contrast intra- and intersentential switching for proficient and non proficient bilinguals, there is a lack of investigation of code switching subtypes and usage patterns for subtypes, and few of these studies focus on children. The detection of such patterns and association of these patterns to subgroups of children acquiring bilingual competency could lead to the description of profiles of subtype use for various subgroups of speakers. In addition to the suggestion that such profiles could provide clues into the developmental role of code switching for bilinguals, it may also be possible to identify certain subtypes of switching that occur with greater frequency in children who have low bilingual proficiency. As such, use of certain switch subtypes could turn out to be a 'marker' which would help identify children who need help in acquiring either (or both) of the languages.

### 1.6.2 Interaction of Elicitation Mode and Switch Subtype Use

To date, very little has been written about the interaction of language mode and differential use of code switching subtypes. Treffers-Daller (1998) has suggested that different elicitation modes will produce different types of switching for adults. By examining in closer detail how different language modes give rise to different switch subtypes, it may be possible to make some generalizations regarding the bilingual language faculty. It is possible that some subtypes may be utilized more in relation to proficiency of speakers; use of other subtypes may be more sensitive to socio-psycholinguistic variables such as language mode. If it can be determined that bilingual children who are still acquiring bilingual proficiency have some patterns in common, we may be able

to make suggestions regarding innate psycholinguistic strategies in the simultaneous use of two or more languages.

## 1.7 Goals of the Current Study

The aim of the current study was to examine code switching in the context of bilingual/multilingual acquisition, and to determine how code switching may reflect the acquisition and development of bilingual competency. In other words, this study endeavors to answer the question: "What does code switching in children tell us about bilingual acquisition?" As such, it is limited in scope to the analysis of code switching in children. The children in this study resided in Switzerland, a society rich in linguistic diversity. Though this study will refer to 'bilingual' children, it is noted that most children in the study were in fact multilingual speakers of Swiss German, English, and to a lesser degree Standard German. Many of the speakers spoke another language as well, including Dutch, Farsi, Greek, Mandarin, Spanish, French, and Gujarati. However, since Swiss German and English were the stronger languages of most of the children, and since the research was conducted with only these two of their languages, the participants will henceforth be referred to as bilinguals.

There were two goals in the study. Because the incidence of code switching is known to be low, it was desirable to increase the amount of code switching available for analysis. Therefore, the first goal was to determine whether or not code switching could be elicited under experimental conditions. A procedure was created to optimize the collection of data by providing a series of trials in which code switching was increasingly likely to occur, both for the purpose of evaluating whether attempts at elicitation could succeed, and also to increase the yield of analyzable data and improve efficiency of data collection with respect to time expended. Two experimental conditions were utilized, the first called 'bilingual' mode, and the second 'code switched' mode. Note that both of the experimental conditions address the question regarding whether code switching can be elicited; they were both designed to activate the bilingual mode as described by Grosjean (1985c, 1989, 2001, 2008). It is not presumed that the code switched mode will be superior to the bilingual mode. The assumption that there is a difference between bilingual mode and code switched (modeling) mode is yet to be validated, and in fact, this study asks the question whether or not modeling of code switching can add significant information to alter or amplify the code switching performance of the bilingual child already in the bilingual mode. For this reason, both experimental conditions will be compared to a baseline condition, as well as to each other.

Included in the design of elicitation conditions were the incorporation of both narrative and question–answer formats. The question-answer format is generally considered to be less time

consuming, and it was of interest to see if there would be a difference in the amount and/or quality of code switching elicited. If significant differences were noted, there could be ramifications on protocol design, depending on the goals of the examiner. For example, if an examiner was interested in a particular subtype of code switching, and one of the formats was shown to yield a greater number of that subtype, the examiner could elect to design a study utilizing the more effective elicitation format.

In addition to a review of the quantities of code switching elicited in the various conditions, analysis of elicitation patterns for code switch subtypes in the varied conditions may provide insight to differential sensitivity of subgroups of bilinguals to variation in language mode as described by Grosjean (1997a, 2001) and Treffers-Daller (1998). Elicitation results will be reported in Section 3.

The second goal was to examine code switching patterns among different subgroups of multilingual children. In order to ascertain what role code switching may play in the development of bilingual competency, children were subcategorized and compared along two continua, first based on their acquisition mode, whether simultaneous or sequential, and second, based on their degree of proficiency in the two languages relative to each other. If differing patterns of code switching type use are found to exist for the various subgroups, it might be possible to contrast patterns of sequential learners and simultaneous learners of varying proficiencies and to identify code switching types which are indicative of successful bilingual acquisition. It may also be possible to examine sequential bilingual children at different stages of acquisition and detect code switching patterns in a developmental sequence. Comparison of sequential and simultaneous child code switching may provide insight into the similarities and differences in the acquisition of these two types of bilingual competence. Typology results and theoretical implications of such findings will be discussed in Section 4, including a developmental perspective, discussion of code switching and the bilingual language facility, and identification and differentiation of atypical bilingual speakers.

# *Section 2 - Literature Review*

The following section will review the literature with respect to research perspectives on code switching, variables which affect code switching, and research findings regarding analysis of code switching in children to date.

## 2.1 Research Perspectives of Code Switching

### 2.1.1 Sociolinguistic

Researchers have analyzed code switching from both sociolinguistic and psycholinguistic perspectives. In the sociolinguistic view, social motivators exist for linguistic code choices. Speakers adapt their conversational acts in response to variations of the setting, social situation or social event (Blom and Gumperz, 1972). Both Blom and Gumperz, and Poplack (1988) have referred to code switching as signaling social information for bilinguals in much the same way that monolinguals use other aspects of language, such as prosody. Myers-Scotton (1988) described code switching choices as a strategy used by speakers to establish a desired relationship between the speakers. She called this the markedness model. According to this model, code choice will match an expected set of rights and obligations between participants. Participants know intuitively about this set of expectations, and when a speaker speaks in a code which does not match this expected set, it stands out; that is, it is perceived as marked. An unmarked code is one which does not stand out as being different to the listener. Most code switching choices in the model are intersentential or single lexical items. Myers-Scotton described four possible scenarios:

1. Unmarked choice, in which the speaker is negotiating a status quo in the relationship of the speakers;
2. Marked choice, in which the speaker is establishing a dis-identification with the expected set of rights and obligations. A speaker may code switch in order to negotiate a higher status in the relationship, to establish a narrowing of social distance, for emphasis, or to denote a change in topic;
3. Code switching as the unmarked choice, in which the participants are bilingual peers. The speakers may wish more than one social identity to be salient. The pattern of using two codes is itself that which carries social meaning;
4. Exploratory choice, in which the situation is uncertain, and the unmarked choice may not be apparent. Speakers then nominate an exploratory choice, being prepared to switch if necessary.

Myers-Scotton emphasizes that markedness is not a response to a situation, but it is a negotiation of position in the context of the situation. It is the expected consequence which structures the code choice.

### 2.1.2 Socio-psycholinguistic

Language mode, as described by Grosjean (1985c, 1997a, 2001, 2008) has already been mentioned in section 1.4. The interaction of input from the linguistic environment with the intrinsic linguistic features of the speaker places the speaker at a point along the language mode continuum, based on the activation level of one language in relation to the other. The continuum allows for intermediate modes along the continuum (1989), and within the context of this situational continuum, the use of one language or another is based on sociolinguistic and psycholinguistic cues.

Another method of analysis from the socio-psycholinguistic perspective is the conversation analytic approach. Patterns of language choice are sought out in the context of the conversations themselves, and the primary goal is to deduce the pragmatic functions of switching behavior (here called language alternation). Auer (1988) describes conversational analysis as a procedure which locates language alternations embedded in their individual discourse contexts. These alternations are seen to serve a social function within the discourse, and are considered to occur either as discourse related or participant related events. Alternation is described as either: a) transfer from one language to another or b) a switch of code. According to Auer's description of transfers versus switched codes, it appears that codes are switched according to conscious or semi-conscious cues, and transfer occurs in response to less conscious stimuli. Examples of each of the possibilities follow:

1. Discourse related transfer – may occur when the other participant switches language. This switch can function as a 'trigger' for transfer by the speaker in response.
2. Participant related transfer – may occur when the speaker either lacks a lexical item or unconsciously responds to a given word as more salient, thereby using a word from the other language.
3. Discourse related code switch – changing codes to denote something about the context of the conversation, perhaps for emphasis, topic change, change of formal/informal mode, or to denote a change in the participant constellation.
4. Participant related code switch – the best example would be a switch made in response to a perceived lack of language proficiency in the speaker being addressed.

Auer conducted a study of Italian/German bilinguals in Constance, Germany. He made the following observations from the conversation analytic perspective: first, the direction of code switching was most often from Italian into German (the community language of Constance). Transfer was from German into Italian. That is, when speaking Italian, speakers were more likely to transfer German words and phrases into their Italian discourse. This demonstrates the language dominance in this setting. Secondly, for speakers in the same interactional network, the frequency of language alternation was most often similar. Third, if the speakers shared a common background, they were most likely to engage in discourse related code switching. Otherwise, the type of alternation was most often participant related. Fourth, the use of code switching as a contextualization strategy varied with age. Children aged 10 to 13 were more likely to code switch to accommodate participants' preferences. Code switching for the purposes of topic change, mode of interaction, etc., did not become frequent until age 13 to 14.

**2.1.3 Psycholinguistic**

Some approaches view code switching from a psycholinguistic perspective, with a focus on the language processing within the mind of the speaker. Research in this area is largely concentrated on the evaluation of intrasentential code switching and grammatical issues, which of course provides the most salient venue for the interaction of the two syntactic systems of the languages within the speaker. Poplack was one of the first to submit that there were systematic regularities in the way the two languages of the speaker were able to be combined within the same utterance. Based on her research with Spanish/English bilinguals (Poplack, 1980, 1981, Sankoff and Poplack, 1981), she formulated two syntactic constraints for the switching of codes. They were the Equivalence Constraint and the Free Morpheme Constraint (Poplack, 1980:585-586). The Equivalence Constraint stated that code switching would tend to occur at points in the sentence where it does not violate the syntactic rules of either the first language (L1) or the second language (L2). The Free Morpheme Constraint applied to switching at the word level; this constraint prohibited switching between a free and bound morpheme. While these constraints held true for her Spanish/English data, the universality of these constraints was disproved by subsequent investigators who were able to come up with counter examples from other language pairs (Clyne, 1987, Myers-Scotton, 1993a), and other Spanish/English examples (Belazi, Rubin and Toribio, 1994).

As syntactic theory evolved from the Aspects model (Chomsky, 1965) through the Government-Binding theory (Chomsky, 1981), various other constraints on code switching were proposed, among them the Government constraint (Di Sciullo, Muysken and Singh, 1986). They stated that "when a government relation holds between elements, there cannot be mixing; when

that relation is absent, mixing is possible." Another constraint proposed in the Government-Binding model was the Functional Head Constraint (Belazi, Rubin and Toribio, 1994), in which the language of the head of a functional constituent was seen to determine the language of its complement. While these and other constraints described in this era of syntactic theory were able to account for some of the code switching data collected, there were inevitably investigators who were able to come up with counterexamples to dispute such constraints (see Kamwangamalu, 1999).

A popular view for the conceptualization of code switching grammar was the Matrix Language Frame model (MLF) proposed by Myers-Scotton (1993a) or the similar Matrix Language Principle (Kamwangamalu, 1990 [1989a]). The underlying assumption is that for code switching there exists a host or matrix language (ML), and a guest or embedded language (EL). The morphosyntactic structure rules of the EL must conform to those of the ML. Myers-Scotton adds two principles to direct the structure of code switched sentences. The Morpheme Order Principle says that in a code switched constituent, surface morpheme order must be that of the matrix language. The System Morpheme Principle says that in ML + EL constituents, the system morphemes (function words, inflectional affixes, auxiliary verbs) must come from the ML. There is ongoing discussion as to how the Matrix Language should be determined, whether it should be based on the 'majority' language of the sentence, the language of the verb, the discourse as a whole, or as Morimoto (1999) and Huang and Milroy (1994) suggest, on a clause by clause basis. Determination of the ML is not always agreed upon, and in this model as well as the others presented thus far, counterexamples are inevitably produced (MacSwan, 2005).

Minimalist theory (Chomsky, 1995) led to a new understanding of the nature of syntactic organization. In previous models, a syntactic structure was seen to be generated and the process ended with lexical insertion. The minimalist program views the process as starting with the lexical selection. Features intrinsic to the lexical item chosen then determine the type of syntactic structure necessary to complete the derivation of a sentence. Inherent in Minimalism is the elimination of mechanisms (constraints) not necessary on conceptual grounds only. As such, rules or constraints specific to code switching were not seen as necessary. Instead, as MacSwan (2000:43) stated, "nothing constrains code switching apart from the requirements of the mixed grammars". An underlying assumption is that deeper understanding of the interaction of two languages in the bilingual will shed light on the universal principles of language in general.

This section has considered the history of CS research and highlighted a few of the theoretical backgrounds which underlie the study of code switching. At this point, I begin to examine variables which affect code switching behavior.

# 2.2 Variables Affecting Frequency of Code Switching

In an elicitation scenario, the goal is to select conditions which are most likely to co-occur with code switching. This section will review relevant findings associated with increased incidence of code switching. Several factors affect the frequency of occurrence of code switching, among them sociolinguistic and psycholinguistic variables. McClure and McClure (1988) noted that macro-sociolinguistic factors can play a role in the amount of code switching that a multilingual community will use. Their study of Saxon speakers in Vingard (Romania) focused on a community in which code switching was very common. Bentahila and Davies (1995) described a language contact setting in Morocco, in which French/Arabic code switching is also frequent and expected among older speakers. In contrast, many of the Spanish/English studies done in the U.S. describe a setting in which one language (in this case English) has a higher prestige, and switching into the lower prestige language is socially discouraged in all but the most informal contexts (Timm, 1975, Zentella, 1978).

### 2.2.1 Sociolinguistic Variables Affecting Code Switching

#### 2.2.1.A Setting

In contrast to the influence of cultural biases of a linguistic community toward or against code switching, a micro-sociolinguistic view examines *occasions* during which code switching is used. Zentella (1990a) identified several physical settings in which code switching occurred. In her study of 34 Spanish/English bilingual children, she placed tape recorders in backpacks worn by the children, and they were followed for approximately two years. She noted that the children were more likely to switch code on the street or in the home than they were at the store (bodega) or on the playground.

#### 2.2.1.B Discourse

In addition to physical setting, we know that the type of conversational activity (or discourse setting) can affect the amount of code switching; in the Zentella study above, children were more likely to switch in casual conversation or in narratives than they were in activities such as purchasing, lessons, interviews, games, or telling jokes. Jacobson (1977:234) reported that informal, relaxed conversation was more conducive to code switching, as did McClure (1981:79), who found that adult-directed interviews inhibited code switching, whereas everyday conversations allowed for more code switching. Grosjean (2001, 2008:42) named a number of factors which affect where a bilingual finds himself in the language mode continuum: physical location, presence [or absence] of monolinguals, or function of the language act. Other discourse related variables can come into play;

Toribio (2001:416) described the use of code switching to emphasize certain parts of a discourse, to identify quotes or particular speakers, to elaborate or qualify, or to use formulaic phrases.

### 2.2.2 Psycholinguistic Variables Affecting Code Switching

#### 2.2.2.A Interlocutors

The perception the bilingual speaker has of the interlocutor (addressee) in the conversation has an effect on CS behavior as well; Grosjean (1997a:452) reported that bilingual adults code switched more when they thought they were re-telling a story to a listener who was predisposed to accept code switching than to one who was either monolingual or unfavorable toward mixing. Gardner-Chloros (1991:98) describes intrasentential code switching in the context of a discourse in which a participant uses switching to establish a social identity in relation to the other speaker. Comeau, Genesee & Lapaquette (2003:124) reported that bilingual children had higher rates of code switching when in a conversation with an interlocutor who code switched frequently (40% of the time) compared to an interlocutor who switched at a lower rate (15%).

Many of the types of switches considered to this point could be called intentional (or perhaps, semi-intentional). If there exists a continuum of code switching, [intentional ~ unintentional], it could be argued that discourse related and sociolinguistic code switches lie somewhere toward the intentional side of the continuum. Whether they are made consciously or not, there is often some sort of 'logical' explanation available to account for the switches. Psycholinguistic factors are harder to explain; they often appear to be motivated by factors intrinsic to the speaker. Some of the processes that motivate or initiate switching are "in the head" as Zentella (1990a:81) put it, and cannot always be succinctly identified. One reason for switching may be saliency; a speaker may switch because the topic is more salient in one language than another, i.e. it is something that they experienced in a language specific context. Triggering is another concept which has been used to explain some kinds of switches – for example, a word may be used in one language which then triggers the speaker to initiate use of the bilingual speaker's other language (Clyne,2000:262). Finally, there is the case in which speakers may ask themselves: "I wonder why I said it that way?" There may not be an obvious reason for the switch, and as such it lies on the unintentional end of the continuum. Poulisse and Bongaerts (1994:37) differentiated between intentional switches, based on contextual or linguistic need, and unintentional switches. These unintentional switches were not necessarily considered to be competency errors, but were considered performance mistakes, or accidental speech errors. This type of unintentional switch may nevertheless be a reflection of language learning. Younger children, particularly those still in

the acquisition process for one or both languages, are perhaps likely to use different types, or different rates of unintentional switching as they acquire increased proficiency.

#### 2.2.2.B Unequal Proficiency of Bilingual Speakers

Proficiency has often been cited as a reason for code switching, the assumption being that the individual resorts to a word or phrase from a stronger language when there is a gap in the lexical or semantic inventory of the base language. Several studies indicate that the type and structure of code switching will vary with the proficiency of the speaker.

While most studies referenced so far were conducted with balanced bilinguals, a few investigators have compared code switching patterns for speakers of varying levels of proficiency. Poplack (1980) and Sankoff and Poplack (1981) compared fluent and nonfluent bilinguals and found that fluent bilinguals tended to use intrasentential code switching, while nonfluent bilinguals tended to switch intersententially or with tag phrases. They hypothesized that nonfluent bilinguals switched between sentences because these switch points were less 'risky'; this allowed them to "participate in the code switching mode although they lacked the bilingual ability in L2 to engage in more complex switching" (1981:33). Accordingly, fluent bilinguals were seen as more skilled code switchers, being able to switch freely at syntactic boundaries within sentences. Becker (1997:7) asserted that this result supports the idea that rather than being an indication of deficiency in either of the speaker's two languages, code switching is an indicator of bilingual ability. She further asserted that nonfluent bilinguals have not yet acquired this ability.

Several terms have been used to describe proficiency, and it is not clear whether the terms used are interchangeable; rather, some of them capture different aspects of bilingual proficiency. A commonly used distinction is fluent/non fluent, seen in the Poplack study (1980) cited above. In the study, fluent bilinguals were described as 'balanced', while non fluent speakers were those who "were fluent in Spanish but not in English". Becker (1997) refers to Sankoff and Poplack's work, but does not define fluency. Other studies have used the fluent/non fluent distinction without a clear definition, and it is hard to know whether 'fluent' refers to the ease of switching from one language to the other, or is used as a reference to the relative competence in both languages. For example, it is not clear whether a speaker who is 'fluent' in English but switches easily and frequently into their weaker L2 should be considered bilingually 'fluent'.

Other researchers have considered proficiency in relation to language preference (Grosjean, 2001) or language dominance (Huang and Milroy, 1994) but both dominance and preference can also be considered an effect of language choice; that is, language performance rather than language

competence is being measured. Dominance and preference are also affected by the majority language of the sociolinguistic environment, and therefore language dominance or preference can vary according to the setting. Another issue is balance: if the speaker is equally proficient in both languages, they would be considered balanced, but what about the case in which the speaker is a competent speaker of Language A but has superior skills in Language B? This speaker would not be balanced but would certainly be considered competent in Language A as well as B. The issue of relative strength in one language compared to another is not a prominent part of Grosjean's language mode model. In what he terms the complementarity principle (2008:23-24), he considers that the bilingual uses each of their languages in different situations and for different purposes. If a language is used in one domain, the other language will not develop the linguistic skills needed for that purpose. The concepts of dominance and balance are seen as reflections of the complementarity principle; each bilingual will have a unique pattern of linguistic repertoire, based on the language they have developed in their daily discourses. Bentahila and Davies (1995:79-80) defined balanced bilinguals as those who can converse with perfect ease in either language, even though they did not test proficiency objectively. They contrasted this group with another bilingual group who, though able to adequately express themselves in both languages, "did not possess the fluency" of the other group, and had far less experience using the second (societally non dominant) language.

In order to achieve some measure of semantic precision with respect to the term 'proficiency', the term will be used in accordance with a designation offered by Gutiérrez-Clellen, Simon-Cereijido, and Leone, who define bilingual proficiency as "competence in both languages" (2009:105). They based their definition on the fact that they used objective measures to determine what was competent. In this study, levels of proficiency will be determined by objective measures.

#### 2.2.2.C Acquisition Type

Type of acquisition has often been used to describe proficiency. There are two types of bilingual acquisition: simultaneous and sequential. Simultaneous learners acquire both languages as young children. Usually, assumptions are that simultaneous acquisition equates with balanced proficiency, however this assumes equal input of both languages. In many societies, it is possible to have near equal input in the home for a time, but once the child assimilates into the linguistic environment, there will be a shifting of balance of input toward the dominant language in a monolingual society, and even in bilingual societies, there are very few that are truly equally balanced. It is almost never the case that bilinguals are completely equal in their use of both languages (Genesee, Paradis, and Crago, 2004).

Sequential learners are usually considered to be L1 dominant; however, language attrition issues can cloud the picture. Length of time in the new language environment, psychological associations with the L1, support of L1 in the L2-dominant environment are all issues which can affect the balance of proficiency. The longer the speaker is immersed in the L2 without L1 stimulation, the greater the likelihood of L1 attrition and subsequent imbalance of proficiency. Adult learners are a large contingent of sequential bilinguals. Children who learn sequentially consist of two types: early and late. A subset of sequential bilinguals is the group who are still in the process of acquiring their L2. There are a few schools of thought regarding description of time required to fully acquire a second (or third) language. Cummins (1981:133) described two measures: Basic Interpersonal Communication Skill (BICS), and Cognitive Academic Language Proficiency (CALP). BICS is generally considered to be reached after 2-3 years of immersion in the L2 (Cummins, 1992:96, Roseberry-McKibbon, 2002:18), and some indicate a wider range between 2-5 years (Bialystok, 2001:231). CALP, which takes longer, is considered to be achieved after a range of 5-7 years under ideal conditions (Cummins, 1992:96). MacSwan and Rolstad (2003:338) have taken issue with what they consider to be prescriptivist aspects of CALP which link it too closely with literacy and formal schooling. They prefer to refer to this second stage of bilingual acquisition as Second Language Instructional Competence (SLIC). In their view, this term describes the level in which the learner can perform in the L2 sufficiently to understand content through all-L2 instruction, and no particular special status is ascribed to academics. In addition, the concept that the learner is somehow superior in cognitive skill is avoided by the use of the term SLIC. Though the nomenclature and theoretical perspectives of these measures differ, both serve the purpose of identifying and describing different levels, or depths, of proficiency for those in the acquisition process.

## 2.3 Studies of Code Switching in Children

Comparison of code switching patterns of adult speakers in varied settings and of varied proficiencies has shown that the subgroups do show different patterns. Fewer studies have considered code switching behavior in children and the role that code switching may play in bilingual acquisition. A logical next question to ask is whether the code switching patterns of children vary with respect to setting and proficiency as well, and to investigate whether children's patterns are similar to or different than those of adult speakers.

Although studies of code switching in children are less numerous than those with adults, it seems prudent to provide an overview of those studies which have been done, particularly those that identify simultaneous learners or sequential learners. These speaker subgroups will be

compared in the current study, therefore a baseline description of the state of research to date is provided.

At this point a word must be said about terminology. There seems to be a different perspective in the literature on code switching in children. Earlier studies of children acquiring two languages simultaneously suggested that children do not initially have separate syntactic systems for the two languages (Volterra and Taeschner, 1978). Although several investigators have since disputed this (Meisel, 1989, Genesee, 1989, Genesee, Nicoladis and Paradis, 1995), it is still noteworthy that children in the process of acquiring the language have a different type of proficiency than adults. In light of developmental issues, it would be difficult to discern whether an observed code switch would truly be: a) switching, or b) evidence of a mixed code which is not yet differentiated, or c) the lack of mastery of a syntactic structure in one of the languages. Consequently, some investigators prefer to reserve the term code switching for adult-like use of the two languages in response to grammatical and sociolinguistic cues, and prefer to refer to the child's use of two languages in the same utterance as code mixing. I have so far used the term code switching in a more generalized sense - to refer to all situations in which two languages are used within or between utterances. In this sense I will continue to use the term code switching, with the understanding that I refer to its more generalized definition.

**2.3.1 Code Switching in Simultaneous Bilingual Children**

Redlinger and Park (1980) examined code switching in two year old simultaneous bilinguals. They found that as mean length of utterance (MLU) increased, the frequency of code switching decreased (1980:351). In addition, they reported that the most frequently substituted part of speech was the noun (1980:345). Lindholm and Padilla (1978:328), in a study of children aged 2 years, 10 months (henceforth 2-10) to 6-2 year olds, reported that the majority of code switching was limited to the lexical level (single words), primarily with nouns. They hypothesized that switching occurred because of the absence of the lexical entry in the matrix language.

Bentahila and Davies (1995) compared the code switching patterns of two four year old simultaneous bilinguals to their results for balanced and unbalanced bilingual adults. They found that the children used high frequencies of both the dominant pattern of the balanced bilingual adults (whole clause switching/alternation; 22.8% of all switches) and the pattern of the unbalanced bilingual adults (primarily noun phrase switching/insertion; 44.7% of all switches). Since many studies of child code switching have identified the switching of noun single-words (Redlinger and Park, 1980, Lindholm and Padilla, 1978), it is surprising that this pattern did not appear with their subjects, who used single word switches only 12.8% of the time. Bentahila and Davies hypothesize

this may be an effect of the children having been exposed to adult models in which switching was freely used. Moroccan bilingual adults switched fluidly and freely, with no apparent cultural stigmatization; this would contrast with children being raised bilingually in a monolingual culture. The latter are not exposed to adult code switching models and essentially have to 'self-invent' code switching structures which may appear in their utterances. Their hypothesis that the code switching patterns of children would be affected by the code switching norms of the adult bilingual community would concur with the suggestion by Redlinger and Park (1980:341,343) that children's propensity to code switch was affected by the balance of L1 and L2 the parents modeled.

Kwan-Terry (1992) observed a simultaneous bilingual child (Cantonese/English) in Singapore from the age of 3-6 to 5-0. At the onset of the study, the child was receiving balanced input from both languages, however he started English language pre-school at age 3-6, and by the end of the study he was English dominant. She reported that this child rarely switched codes intrasententially, with the exception of single word switches, and that he used some intersentential switching. Analysis was conducted based on Myers-Scotton's MLF model (1993a). Kwan-Terry noted that the frequency of switching was much higher when the child was using Cantonese as his matrix language. With an English matrix, his stronger language, the use of Cantonese words was limited to kinship terms, a few pragmatic particles resulting from the influence of Singapore colloquial English, and a small number of lexical terms from the home domain. Interestingly, as his English proficiency improved, these Cantonese code switched words were eventually replaced by their English equivalents. This would suggest that code switching played a sort of developmental role with respect to lexical acquisition. When speaking Cantonese he used a Cantonese matrix, but with, in Kwan-Terry's terms, "a vast increase" in the amount of English code switched words (1992:254).

Vihman (1988) did a longitudinal study of her two Estonian/English simultaneous bilingual children. Her children used single words (nouns, and some verbs) as their most common code switch type. She reported that her children were more likely to switch when the matrix language was Estonian than when it was English. It is usually reported that speakers switch more when using their weaker language as the base or matrix (Grosjean, 2008:76); however, Vihman's children were competent speakers of both languages. Estonian was the established language of the home environment, and the usual matrix language for the children's discourse with one another. Since they were used to hearing and using English in the outside community, it was not unexpected that they would incorporate some English into their Estonian discourse. The converse was not the case, as the outside community was known not to understand English, so it would be much less likely that the children would use Estonian while engaging in English discourse in the outside community.

Therefore, rather than attributing the directionality of her children's switching to diminished proficiency in Estonian, she attributes it to sociolinguistic factors – the language dominance of English in their community (1998:62).

Researchers who have studied simultaneous bilingual children have noted both similarities and differences in the code switching patterns of children compared to adults. Kwan-Terry (1992:250-251) noted that the child in her study used marked code switching in similar contexts as have been reported for adults: to clarify, for emphasis, or to mark off a parenthetical remark. His choice of code was usually in accordance with that of his addressee, unless he was particularly emotionally involved. As with adults, the contextual setting affected the child's use of code switching. Vihman's (1998:62) study revealed differences in the structure of code switching: intersentential code switches comprised 9% of the children's code switches, compared to 20% for the adults reported in Poplack's (1980:602) study in the Puerto Rican community in New York. Vihman further noted that, although the children complied with most of the constraints on code switching predicted by Myers-Scotton's MLF model, there were some phenomena which suggested what she called 'immaturity in the formulation process' – such as shifting of the matrix language in mid utterance, and combination of system morphemes from the embedded language with grammatical morphemes from the matrix language (1998:75).

Vihman (1998:74) also noted a progression in the development of code switching patterns in her children. At the beginning of her study, when the children were 2-8 and 5-11, they utilized intrasentential code switching in only 3% of their conversational turns. By the end of the study, at ages 6-7 and 9-10, they were using intrasentential switches in ten percent of their turns. Based on her overall observations, Vihman suggests a developmental sequence for code switching; a first stage when infant bilinguals use words from both languages, a second stage in which lexical and syntactic development allow for independent sentence formation in each language, (thus, code switching decreases), and a third stage in which the children begin to engage in adult-like code switching, given that they have received maintenance and support from their environment for both languages, and a fourth stage where the child begins to switch longer stretches of words, including idioms and formulaic expressions, and seems to be associated with school age (1998:75) This second stage appears to be in accord with Redlinger and Park's findings (1980:351) that switching decreased as MLU increased, around two years of age. Kwan-Terry (1992:255-256) made an interesting suggestion with respect to the presence or absence of code switching in the development of lexical acquisition. Her subject was stronger in English and she described a progression of steps the child seemed to go through in the acquisition of Cantonese words. The less

established a word was in the child's lexicon, the more likely code switching was to occur. At the least proficient level, the child demonstrated understanding of the term receptively, but when pressed to use the word, the child was likely to code switch with the English term. In the next stage, the child was able to produce the Cantonese word if the mother had 'activated' it for him; that is, if she had used the term recently in the discourse, the child was able to use it in an ensuing utterance. If however, more time elapsed, by the next day for example, the child was not able to 'call up' the word, and would code switch with the English term. Kwan-Terry called this the overlap stage. At this point the child was equally likely to use the term in either English or Cantonese. She interprets this as meaning that the child had not fully internalized the word in Cantonese, and so the word would come out in either English or Cantonese, "depending on which came to his mind first" (p 256). Once the child had internalized a Cantonese word, code switching to the English word was unlikely to occur.

These findings suggest that code switching might be employed as a sort of developmental tool for bilinguals, at least in lexical acquisition. Do children use code switching as a strategy, consciously or unconsciously, in bilingual acquisition? Is code switching a fundamental aspect of interlanguage? Oksaar (1971:384) took this view in an article on the use of code switching in her son's simultaneous Swedish/Estonian acquisition, and describes the following model:

> "When the two languages that (a child) is learning are L1 and L2, his repertoire is Lx. Lx contains elements and rules form L1 and L2, as well as elements and rules typical only for Lx. They were activated according to the requirements of the situation. In certain speech events, L1 parts dominate, in others those from L2, and in still others the autonomous parts of Lx. The contact of languages gives the child an opportunity to choose his linguistic medium of expression. It also gives the child the possibility of creating what is most appropriate for him to master the speech acts…"

She goes on to say that just as monolingual children have rules and elements in their emerging grammars that are different than the adult code, so do simultaneous bilinguals. The manner in which Oksaar has described code switching is basically a description of interlanguage (see Selinker, 1972).

There have been other suggestions in the literature that code switching serves a purpose in helping children acquire two languages simultaneously. The Bilingual Bootstrapping Hypothesis (Gawlitzek-Maiwald and Tracy, 1996) and the Ivy Hypothesis (Bernardini and Schlyter, 2004) are two such suggestions. In a case study of a German/English bilingual child from the age of 2 to 4 years,

Gawlitzek-Maiwald and Tracy observed that the child acquired certain constructions at different rates in the two languages. Although the structures were developing in a non parallel manner, the child was noted to use structures from one language to 'boost' use of the structure in the other language through mixed utterances, temporarily filling gaps that may have existed. This study assumes normal development of both languages in the child. Bernardini and Schlyter describe development in five Swedish-French or Swedish-Italian bilingual children, aged 2-4. Although they were all simultaneous bilinguals, each of these subjects had a demonstrably weaker language, as measured by mean length of utterance (MLU) and Upper Bound (UB) defined as the longest grammatical utterance in the transcript. They examined the code mixing of these children and concluded that when speaking in their weaker language, they utilized forms from the stronger language. In their view, the weaker language "clings on the tree structure" of the stronger language, and the stronger language provides what is not yet mastered in the weaker language. `

**2.3.2 Code Switching in Sequential Bilingual Children**

Code switching in sequential bilinguals has been examined in the natural environment and in the classroom (Ogane, 1997). The majority of these studies focus on adult learners. There are not many studies in the literature which examine code switching patterns of sequential bilingual children.

Schmitt (2000) described the code switching of five Russian boys who immigrated to the USA at the ages of three to five. These sequential bilingual children were all Russian monolinguals at the time of immigration and had been in the USA for six years when the data were collected. Data were collected by audio taping conversations that took place in the boys' homes between the boys and their parents, siblings, and Russian family friends. Schmitt observed that the children's code switching was quantitatively different from adult code switching. She describes the code switching of the boys in terms of overt and covert code switching. Overt code switching is described as having English and Russian surface forms. Overt code switching included three subtypes: single word switches (17.9% of all switches), "classic" code switching (11.8%), which she described as consisting of mixed phrases (XPs) and embedded language (EL) islands, and bare form code switching (23.6%), which were English content morphemes without Russian inflections. The final category, representing 46.8% of all code switches in her corpus, was covert code switching (= convergence). This was described as having Russian surface forms, but with evidence of English influence on the composite matrix language frame; that is, the abstract structure may be English or a composite mixture with aspects of English or Russian structure, with Russian surface morphemes (these forms would be considered calques in the current study). Schmitt presents a continuum of overt and

covert code mixed types for sequential bilingual children, which she believes indicates a mechanism of language attrition. The existence of composite matrix language frames is seen as evidence of language loss in progress. Many examiners would regard Schmitt's covert code switches to be language transfer, or calques, and as such would not consider them to be within the realm of code switching. However, whether referred to as covert code switching, transfer or calquing, it is a recurring and consistent aspect of language contact. The role of calques in the acquisition and attrition of language in bilinguals is worthy of attention.

Schmitt's (2000) study analyzed the code switching patterns of sequential bilingual children who had already acquired their L2, and were subsequently experiencing attrition of their L1. Other studies which have examined code switching from the perspective of attrition were conducted with sequential bilingual children by Seliger (1989) and with simultaneous bilinguals by Bolonyai (1998). In both studies, calques were associated with language loss. In these studies, the children were in an environment in which one of their languages did not receive the same level of maintenance and support.

In another study of code switching in sequential learners, Poulisse and Bongaerts (1994) examined unintentional switches of L1 Dutch into L2 English for three levels of proficiency with teenagers and young adults aged 13-22. The less proficient participants in their study were, the higher the incidence of unintentional switches. The set of unintentional switches consisted of content and especially function words. Content words were often repaired (about 53% of the time) whereas function words were repaired only 31% of the time, leading the reader to presume that many of the unrepaired switches went unnoticed by the speaker. The subjects in this study were late school age and older, but these results suggest that one may also expect increased switching in less proficient sequential learners of school age.

Studies of the code switching patterns of younger sequential bilingual children are scarce. Nakamura (2005) described the code switching of a Japanese/English bilingual child with an unusual acquisition sequence. He was born in Japan, moved to the U.S. when he was 2-7, and by the age of four, his second language, English, was described as his "primary" language. At this point his Japanese exposure was minimal beyond the scope of the home, and his acquisition of Japanese could be considered to have leveled off. He was schooled in English and in Kindergarten preferred not to speak Japanese, especially in front of his classmates. He was considered a proficient English speaker; at the age of 8 he scored above average on English reading diagnostic tests. When the child was 7-8, and again a year later at 8-8, he traveled to Japan and attended public school for two weeks and spent a third week with relatives. These two exposures to Japanese served to increase his

confidence and proficiency in speaking Japanese. In this sense, the re-immersion in Japanese could be seen to have initiated a 'restart' of a sequential nature in his acquisition of Japanese. Data were collected when the subject was 8-0 and 8-11, and code switching was quantified and analyzed qualitatively. In the earlier data, 84/105 code switches were intersentential. In the later set of data, the amount of intersentential switching decreased almost by half (to 46). Nakamura interprets this by describing in greater detail the types of intersentential switches in the first data set. They involved what the author refers to as 'back-channeling types of discourse markers/responses', and consist of responses such as 'yea' or 'uh-huh', and are uttered as a form of listener feedback to the speaker. (These back-channel discourse markers were not analyzed as intrasentential switches; they were considered to be a type of intersentential switch, such as a tag switch.) Use of such responses was frequent in the first trial, typically with a Japanese back-channel response followed by a switch to a wholly English sentence. In this manner, the child was able to accommodate his Japanese interlocutor by giving the impression that he was responding in Japanese, when in fact his ability to converse was limited. Nakamura suggests that this could be an effective strategy at the early bilingual stage. Comparing the later data set to the earlier data set, the number of switches at the juncture of back-channeling discourse markers and the rest of the utterance decreased, (likely because the child was able to complete utterances in Japanese more often). Another difference in the quality of code switches between the early and later data sets was that the number of intrasentential code switches increased, and certain types of switches occurred in the later data set, which were not noted in the first; most notably within-word switches.

In the preceding overview of code switching studies in children, a background has been provided for the reader, reflecting current understanding and perspectives in the area of research. This background, in combination with the stated shortcomings of data collection and lack of attention to acquisitional profile and bilingual proficiency in section 1, provides the rationale to substantiate the research goals of this study. We can now proceed to the description and report of the current study results.

# *Section 3 – The Elicitation Study*

In the following section, a review of the participants and methodology used in the elicitation study will be provided. Results for three elicitation conditions will be compared, revealing the effectiveness of two experimental protocols to produce increased intra- and intersentential code switching and calques, compared to the baseline condition. Next, results will be compared for elicitation format (narratives vs. questions), and for efficiency, defined as amount of code switching elicited per minute for the two formats. A discussion and summary of results will follow, along with suggestions for further study.

## 3.1 Participants

### 3.1.1 Linguistic Background – The Language Environment in Switzerland

Data were collected in and around Zurich, Switzerland. The language environment in Switzerland is unique in comparison to many countries. There are four official languages: German, French, Italian, and Romansch. In the German-speaking part of the country, the spoken language of the community is Swiss German. The Swiss themselves refer to their language as a dialect of German; at the same time, it can be distinguished from German (henceforth referred to as Standard German) because of its differing syntactic, semantic and phonological systems. In fact, it is not mutually intelligible for many Standard German speakers, as evidenced by the presence of subtitles on German television news reports when Swiss German speakers are interviewed. There are many dialects of Swiss German, and there is no official, standardized written form. For this reason, children are taught to read and write in Standard German. In the canton of Zurich, where the data were collected, Swiss children are taught in Swiss German only for the two years of Kindergarten, at ages 5 and 6. By first grade, age 7, instruction is given in Standard German and some Swiss German. The use of Standard German continues to increase such that by fourth grade, age 10, all instruction within the classroom is in Standard German. Accordingly, by the time a child is literate, he or she is a bilingual Swiss German/Standard German speaker. The children in this study are also speakers of English, and all are in the process of becoming trilingual. Since the children's exposure to Standard German is essentially equal for all participants, Standard German will not be considered as a separate variable.

### 3.1.2 Participant Profiles

Forty Swiss German/English bilingual children living in the Zurich area of Switzerland were evaluated. Their ages ranged from 5-14 years old. Thirty seven of the children completed the study.

Three additional subjects were not included in the data corpus; two because of missing data due to tape malfunction, and one whose results deviated so significantly from the rest of the data that his results were set aside for separate review at a later time. (This particular subject had a history of language delay and at the age of 6 had been exposed to 4 languages in the home in addition to Swiss German in the neighborhood and school.) In all, 34 subjects were evaluated. To be included in the study, students were to have received consistent English input in the home; that is to say, none of the children were Swiss German speakers who learned English sequentially – all were either simultaneous learners of English and Swiss German or they were English L1 speakers who acquired Swiss German sequentially[2]. This criterion helped to ensure that the children had received support and maintenance in English, the minority language in the Swiss environment. Thirteen children were speakers of other languages in addition to Swiss German and English[3]. (This was not uncommon in the multilingual international community.) Children with remediated (n=2) or mild (n=2) articulation delays were included in the study. One sequential learner was reported to have had a language delay as a preschooler; at age 8 he tested within the average range for English proficiency and was included in the study. 8 children attended monolingual Swiss public schools, one attended a monolingual private English speaking school, and 25 attended a bilingual English/ German primary school in Küsnacht, Switzerland, a suburb of Zurich.

### 3.1.3 Language Environment of the Bilingual School

The bilingual school in the study provided fifty percent of instruction in English and fifty percent in either Swiss German or Standard German, depending on the children's age. For five and six year olds, each class had two teachers, one a native English speaker and the other a native speaker of Swiss German. Both teachers were present the whole day and the students were randomly assigned daily into two groups and split their time between the English speaking side of the room and the Swiss German speaking side, being equally exposed to both languages daily. For grades one through six, (ages 7-12), each class had two teachers, one native English speaker and one native Swiss speaker who used Standard German in the classroom exclusively. Each class had one teacher on Monday and Tuesday, the other teacher on Thursday and Friday, and the teachers alternated for the half day every other Wednesday. All teachers in the school utilized the one person-one language mode, and did not code switch. The Swiss German teachers who intentionally

[2] Four participants were simultaneous learners of English and Standard German, who became sequential learners of Swiss German in late preschool. They were classified as sequential learners for the purpose of this study, since the focus was on the interaction of English and Swiss German.

[3] Other languages of participants: Dutch, French, Spanish, Standard German, Greek, Farsi, Mandarin, Gujarati.

used Standard German in the classroom did occasionally use Swiss German on the playground and in the lunchroom, where language choice was not controlled.

## 3.2 Methodology

### 3.2.1 Participant Measures

Acquisition type was determined by parental report (see Appendix A). A child was considered to be a simultaneous learner if he or she had received 'consistent daily exposure to both German and English' beginning within the first 18 months of life. 12 children were classified as simultaneous, and 22 were classified as sequential speakers. Sequential learners consisted of two subgroups: those who were considered to have fully acquired their L2, and those who were still in the acquisition process. Because the task involved in the protocol was determined to require BICS competence (see Section 2.2.2.C), the students were considered to have fully acquired L2 if they had been exposed to the language for three years or more. Of the sequential learners, 14 had fully acquired L2, and 8 were still in the acquisition process.

Participants were evaluated before data collection in order to assess language ability. For English, the children were administered the Test of Language Development: Primary-2 (TOLD: P-2), (Newcomer, 1988); Test of Language Development: Intermediate-2 (TOLD: I-2) (Hammill and Newcomer, 1988); or Test of Adolescent Language-3 (TOAL-3) (Hammill, Brown, Larsen, and Wiederholt, 1994); according to their age. Each test was comprised of subtests which provided measures of receptive understanding and verbal expressive use of language, as well as vocabulary and syntax. Phonological competence was not measured. (For a review of sample questions, see Appendix D.) Performance on these measures provided a standard score for receptive and expressive language. Based on the distribution within the sample, these scores were used to identify three groups of speakers: strong, moderate, and weak. Assessment of Swiss German proficiency was more problematic. No standardized tests of Swiss-German existed for the ages in the study, and it was determined that measures in Standard German would not be appropriate. Therefore, proficiency was determined by teacher or parent questionnaire, using a five point scale for varied aspects of vocabulary, syntax and pronunciation (see Appendix B). Students were assigned a score of one through five according to their teachers' or parents' perceptions of their language skill. Using these scores, participants were classified as strong, moderate, or weak in Swiss German. Participants who were weak in either of the two languages were considered to be non-proficient. Twenty participants were classified as proficient, and 14 were classified as being non-proficient.

**Table 3. Participants and Proficiency Classification**

| | Strong Swiss German | Moderate Swiss German | Weak Swiss German |
|---|---|---|---|
| Strong English | 2 | 4 | 3 |
| Moderate English | 7 | 7 | 7 |
| Weak English | 3 | 1 | 0 |

Table 3 provides an overview of the participants and their proficiency classifications; shaded cells identify those subjects whose proficiency profiles classify them as proficient. Numbers in each cell represent participants. Table 4 presents acquisition types and proficiency together.

**Table 4. Participants' Acquisition Types Combined with Proficiency**

| | Strong Swiss German **simultaneous** /*sequential* | Moderate Swiss German **simultaneous** /*sequential* | Weak Swiss German **simultaneous** /*sequential* |
|---|---|---|---|
| Strong English | **0** / *2* | **1** / *3* | **0** / *3* |
| Moderate English | **3** / *4* | **5** / *2* | **1** / *6* |
| Weak English | **1** / *2* | **1** / *0* | **0** / *0* |

Boldfaced, underlined numbers on the left in each cell correspond to participants with simultaneous acquisition; italicized numbers on the right represent those with sequential acquisition.

### 3.2.2 Procedure

In order to develop a protocol which would enhance the elicitation of code switching, the literature was reviewed and conditions identified which generally encouraged code switching, among them: familiar physical settings, informal situations, narrative discourse, and in-group interlocutors. A series of elicitations was devised which would increasingly utilize all available strategies to make code switching most likely. The work of Grosjean (1985a, 1989, 1997a, 2001,

2008) and his concept of language mode were also highly influential in the current protocol design. In addition to manipulating the discourse setting and participants, the succession of trials was designed to activate the bilingual mode, and attempt to active a code switching mode by providing modeling of the same.

Data were collected in four sessions, according to the protocol in the Strong Narrative Assessment Procedure (SNAP) (Strong, 1998), in which students looked at pictures in a wordless book as they followed along and listened to an audio recording for each of a series of Frog Stories by Mercer Meyer (1969, 1974, 1985, 1992) in groups of 2 or 3. They were told by the examiner that she had to leave, but that she would be back in a few minutes. After the examiner returned, each child was taken one at a time into a separate room and asked to give a narrative retell of the story. The student was not allowed to refer to the pictures in the book. Following the narrative, the student was asked the 10 comprehension questions included in the SNAP protocol for the story. Narrations and answers to the questions were tape recorded for later transcription. In all trials, the story was presented in English. Approximately three weeks later, the exact same protocol was repeated with the same examiner. This allowed the children to become familiar not only with the protocol, but with the adult examiner as well. In the first 2 trials, instructions and questions were presented in English. A third trial was conducted, again around three weeks after the second trial. This time the examiner settled the children into their listening groups and started the audio presentation of the story, however when she returned to take the children out one at a time, she explained that she had a helper that day, and that they should tell the story to her. The second examiner (the helper) was a 14 year old fluent bilingual girl who greeted the students in Swiss German, and gave them an introduction exclusively in Swiss German explaining that she was helping and asking them to tell her the story. These Swiss German remarks were followed by the English instruction, "You can start now." In the event that the student asked in which language they should tell the story, the examiner was instructed to answer them in whichever language they asked the question, and to tell them that either language was fine to use; they could choose. In this trial, the examiner was closer to the participants' ages, and though unfamiliar to the subjects, she was clearly bilingual and closer to their in-group. Comprehension questions were posed in English. After a few weeks' break, a fourth trial was administered. This time the examiner was a 12 year old male peer who attended the bilingual school. Following the same protocol, he was introduced as the helper this time, and gave instructions in code switched English/Swiss German. The comprehension questions were also presented in the code switched mode.

The procedure for the 9 students attending Swiss monolingual schools was essentially the same, except that the trials took place in the children's homes. The 14 year old helper, who was known to all but two of the participants, had scheduling conflicts and was not able to participate in the third trial with four of the children. There were two other bilingual helpers that were used in the third and fourth trials. One was the 11 year old sister of the first helper, and the other was a 12 year old simultaneous bilingual girl who attended Swiss public school. For the fourth trial, six of the nine participants were examined by the same helper that had performed the third session. The other three participants had been examined by the 14 year old in the third trial, and they were examined by the 11 year old sister in the final session. It was hypothesized that presenting the subjects with an increasingly familiar task, moving from adult to progressively more familiar and peer-like examiners, and activating the bilingual mode and introducing code switching through modeling would encourage and elicit code switching.

### 3.2.3 Composition of Examiner Script for the Code Switched Condition

Two students from the bilingual school were selected to assist in developing a code switched script for instructions and introductory remarks for the fourth trial. Both were 12 year old, proficient, simultaneous bilinguals: one boy and one girl. The examiner described code switching to them, and once it was clear that they recognized and understood the concept, she asked them to work together to rewrite the introductory remarks into code switched discourse. She then turned on a tape recorder and left the room while they worked. After they had come up with a translation of the original script into a code switched discourse, their version was transcribed and shown to two adult teachers who were native speakers of Swiss German. They were asked whether the children's version was a good representation of the kind of code switching that they would typically hear children use in the classroom or on the playground. For the most part, the adults agreed that the discourse the children had come up with was typical of children's code switched speech. There was one phrase which the children composed that the adults did not judge to be grammatically acceptable.[4] This phrase was left as the children had written it. Ten comprehension questions were then translated into code switched form. These also were presented to the Swiss German teachers who were asked to verify that they were examples typical of the sorts of code switching they might hear their students use. After some minor adjustments, the questions were approved and used as written. The examiners' script in the code switched mode included the following types of code switches: intersentential, single word switches involving both nouns and verbs, and phrase switches.

[4] The phrase is discussed in Appendix C.

Patterns of phrase switching included sentences with alternational and insertional switching. Scripts for the code switched mode are found in Appendix C.

### 3.2.4 Transcription and Coding

Narratives and comprehension questions were transcribed and segmented into communication units[5] (C-units) according to guidelines for spoken narrative production described by Loban (1976). Transcripts were entered into the Systematic Analysis of Language Transcription (SALT) program (Miller and Chapman, 1984), and coded according to code switching types, including: intersentential switches, calques (also called covert code switching or loan translation) and intrasentential switches. Intersentential switches were coded as such if the speaker changed their languages in relation to their own previous utterance. In this way the need to decide the primary language (matrix) of an interlocutor's preceding intrasententially mixed utterance was avoided; this was a potential issue with the code switched question format. This method of coding is in accord with conventions for coding intersentential switches described in Nakamura (2005). Tags were also considered to be part of the intersentential classification. Items were coded as calques if they met the criterion of having the morphological or grammatical form (such as word order) of one language, with surface forms (lexical items) of the other language. For Section 3, the elicitation question, intrasentential switches were considered altogether. For Section 4, the typology study, intrasentential switches were grouped into 4 categories: single word switches, phrase switches, mazed switches and hybrid words. Some single word switches were used as expletives or tags and were ultimately classified as intersentential switches. Mazes are defined as repetitions, filled pauses or rephrasings. Presence of mazes can reveal difficulties with sentence formulation or word finding. When switches occurred in mazes, they were quantified and labeled as mazed switches. Hybrids were those words in which morphemes from more than one language appeared, and were considered their own class, even though technically they could be considered a variety of single word switch. This classification was separated from single words in order make provision for the possibility that only certain types of bilinguals would use this unusual form. Although hybrid forms are often excluded from adult data on the basis of their violation of Poplack's Free Morpheme constraint (1980, 1981), such hybrids are seen in child data (Müller and Cantone, 2009); Radford, Kupisch, Köppe, and Azzaro, 2007, Taeschner, 1983). Transcripts for each of the narrative and question sessions were coded for elapsed time.

[5] C-unit: one main clause (subject + predicate) with all subordinate clauses that are attached to it.

# 3.3 Elicitation Results

Studies of code switching vary greatly in their quantification and classification of data, as was discussed in sections 1.2.2 and 1.5.1 and seen in Table 1. Those studies which focus on describing grammatical issues in code switching tend to focus exclusively on intrasentential code switching. Other studies which focus on sociolinguistic issues are more likely to include both intra- and intersentential code switching, and studies focusing on acquisition and/or attrition have considered calques in greater detail. Because many studies do not consider intra- and intersentential switching, and/or calques together, it was decided that presenting the analysis of composite numbers would make comparison of the results in this study to existing studies less transparent. Therefore the data for three code switching types elicited in this study are presented separately. Accordingly, three within subjects repeated measures ANOVAs were used to evaluate the effect of elicitation condition on switching, one for each of the three code switching types. In this sense, patterns of switch use are not considered for the elicitation study, but rather whether each switch type was or was not elicited by the elicitation condition (or format) in question.

### 3.3.1 Elicitation Condition

The first trial was considered to be a familiarization trial and the data were not used in the elicitation analysis, with the following exception: two of the subjects were absent on the day of the second trial. In their cases, this first trial was used as their baseline data. For the rest of the subjects, the second trial was used as the baseline condition. The third trial, in which the examiner was a bilingual using two distinct languages, was the first experimental condition and will be labeled the bilingual condition. The fourth trial (second experimental condition) will be referred to as the code switched condition. Analysis of data for intrasentential, intersentential and calque data will each be discussed in a separate review. Table 5 summarizes the results for elicitation condition.

**Table 5. Elicited Code Switches for 3 Elicitation Conditions:**

**A. Total Switches per Condition**

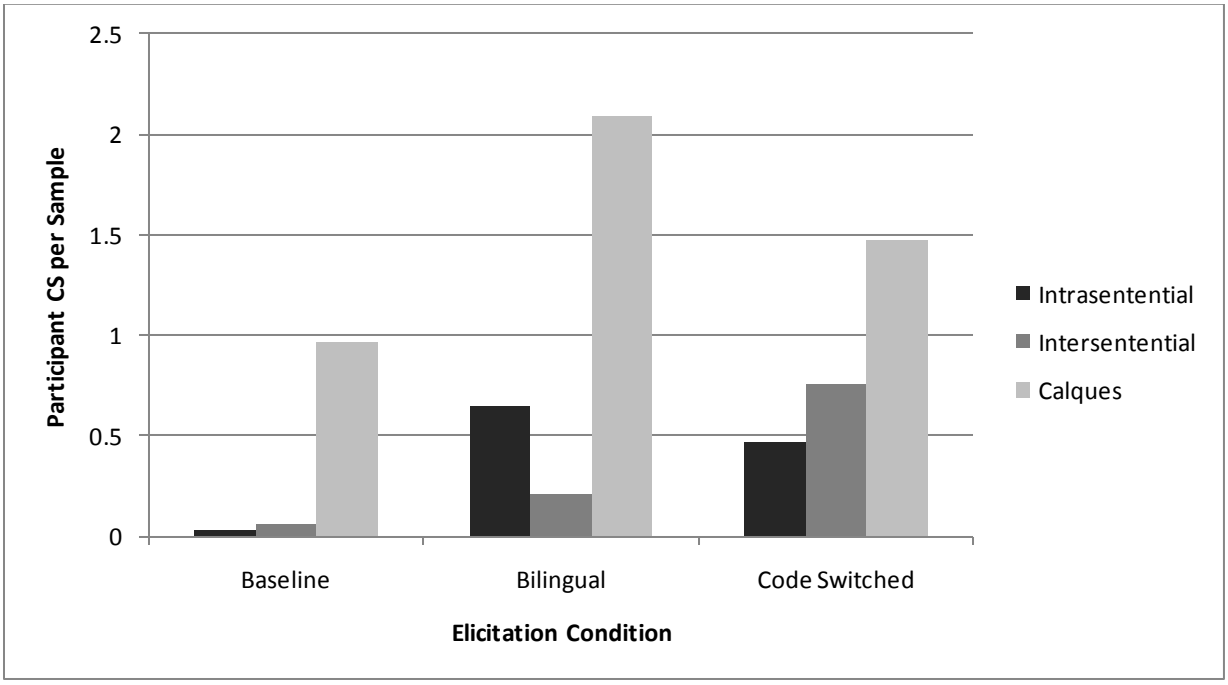
| CS Type | Baseline | Bilingual | Code Switched |
|---|---|---|---|
| Intrasentential | 1 | 22 | 16 |
| Intersentential | 2 | 7 | 27 |
| Calques | 33 | 71 | 50 |

**B. Mean # Switches /Participant for Each Sample**

| CS Type | Baseline | Bilingual | Code Switched |
|---|---|---|---|
| Intrasentential | .03 | .65 | .47 |
| Intersentential | .06 | .21 | .77 |
| Calques | .97 | 2.09 | 1.47 |

Figure A below displays the distribution of code switch types that were elicited for each condition. All types of code switching increased in the two experimental conditions. Incidence rates of the three different types are represented, displaying the higher frequency of calques in relation to the relatively small numbers of intra- and intersentential switching in each of the elicitation conditions.

**Figure A. Elicitation of CS Types by Elicitation Condition**




**3.3.1.A Elicitation of Intrasentential Switching**

Nineteen of the 34 participants did not use any intrasentential switches at all. Switching totals were presented in Table 5. In order to ascertain whether elicitation condition had an effect on production of intrasentential code switching, a one-way within-subjects analysis of variance (ANOVA) was conducted with the factor being elicitation condition and the dependent variable being the number of intrasentential switches per sample. The means and standard deviations are

presented in Table 6. The results for the ANOVA indicated a significant effect of elicitation condition on intrasentential switching: $F(1.647, 54.357) = 4.502$, $p = .021$, partial $\eta^2 = .120$. The Huynh-Feldt alternative test was used to adjust degrees of freedom due to violation of the sphericity assumption.

**Table 6. Descriptive Statistics for Intrasentential Code Switching in Switches per Sample**

| Condition | Mean | Standard Deviation | N |
|---|---|---|---|
| Baseline | .03 | .17 | 34 |
| Bilingual elicitation | .65* | 1.37 | 34 |
| Code Switched elicitation | .47* | .86 | 34 |

* Pair wise comparisons indicated significant differences in amount of switching between the baseline and bilingual elicitation conditions, $p = .025$, and between the baseline and code switched elicitation, $p = .021$, but not between the bilingual and code switched elicitation conditions, $p = 1.00$. Critical values were adjusted for multiple comparisons according to Holm's sequential Bonferroni procedure. It is therefore concluded that the bilingual and code switched elicitation conditions were both effective in eliciting intrasentential code switching. The two experimental conditions (bilingual, code switched) were not significantly different from one another in elicitation of intrasentential switching.

A few representative examples of intrasentential switches produced by the children are presented below. Swiss German is represented by italics; English is in regular font, with morphosyntactic translations in brackets below each example, followed by English translation in quotes. Inflectional morphemes are omitted or simplified unless necessary to the discussion, for ease of transparency in reading.

(1) …*wil är* the baby frog *nöd gärn hät.* (phrase switch)
[because he the baby frog not fondly had]

"…because he didn't like the baby frog."

(2) …heard some *kwak*ing sound. (hybrid word switch)
[…heard some croak + ing sound.]

"…heard some croaking sound."

(3) …(because uh) *wil zerscht…* (mazed switch)

[…(because uh) because first…]

"…(because uh) because first…"

(4) …said, '*Böse* frog'… (single word switch)

[…said, 'Bad frog'…]

"…said, 'Bad frog'…"

### 3.3.1.B Elicitation of Intersentential Switching

There were 20 participants who did not use intersentential code switching. Again, switching totals for those who switched were presented in Table 5. In order to ascertain whether elicitation condition had an effect on production of intersentential code switching, a one-way within-subjects analysis of variance (ANOVA) was conducted with the factor being elicitation condition and the dependent variable being the number of intersentential switches per sample. The means and standard deviations are presented in Table 7. The results for the ANOVA indicated a significant effect of elicitation condition: $F(1.213, 40.020) = 5.846$, $p = .015$, partial $\eta^2 = .151$. The Huynh-Feldt alternative test was used to adjust degrees of freedom due to violation of the sphericity assumption.

**Table 7. Descriptive Statistics for Intersentential Code Switching in Switches per Sample**

| Condition | Mean | Standard Deviation | N |
|---|---|---|---|
| Baseline | .06 | .34 | 34 |
| Bilingual elicitation | .21 | .48 | 34 |
| Code Switched elicitation | .76* | 1.56 | 34 |

* Pair wise comparisons indicated significant differences in amount of intersentential switching between the baseline and code switched elicitation conditions, $p = .049$, but not between the baseline and bilingual elicitation conditions, $p = .507$, or between the bilingual and code switched elicitation conditions, $p = .065$. Critical values were adjusted for multiple comparisons according to

Holm's sequential Bonferroni procedure. It is therefore concluded that the code switched elicitation condition was effective in eliciting intersentential code switching.

Below are some examples of intersentential switches collected in the data set, using the same font and bracket conventions as in section 3.3.1.A above:

(5) OK, OK, *emol hät's n Bueb gha…* (tag switch)
[OK, OK, once auxV it a boy had ]
"OK, OK, once (upon a time) there was a boy…"

(6) Child: *Är hät gsait Ø söllsch Ø nöd mache.*
[he said (he) should (it) not do ]
"he said he shouldn't do it."

Examiner: What did the big frog do to the baby *Frosch wo si ufem Boot gsi sind?*
[What did the big frog do to the baby frog when they on the boat were?]
"What did the big frog do to the baby frog when they were on the boat?"

Child: um, he pushed him down. (intersentential switch)

**3.3.1.C Elicitation of Calques**

There were 9 participants who produced no calques. Incidence of calques is displayed in Table 5. In order to ascertain whether elicitation condition had an effect on production of calques, a one-way within-subjects analysis of variance (ANOVA) was conducted with the factor being elicitation condition and the dependent variable being the number of calques per sample. The means and standard deviations are presented in Table 8. The results for the ANOVA indicated a significant effect of elicitation condition on production of calques: $F(2, 66) = 4.470$, $p = .015$, partial $\eta^2 = .119$.

**Table 8. Descriptive Statistics for Calques in Switches per Sample**

| Condition | Mean | Standard Deviation | N |
|---|---|---|---|
| Baseline | .97 | 1.95 | 34 |
| Bilingual elicitation | 2.09* | 3.75 | 34 |
| Code Switched elicitation | 1.47 | 2.46 | 34 |

* Pair wise comparisons indicated significant differences in amount of switching between the baseline and bilingual elicitation conditions, $p$ = .044, but not between the baseline and code switched elicitation, $p$ = .313, or between the bilingual and code switched elicitation conditions, $p$ = 334. Critical values were adjusted for multiple comparisons according to Holm's sequential Bonferroni procedure. It is therefore concluded that the bilingual condition was effective in eliciting calques.

A few examples of calques produced by the children are reproduced below. Proper word order or form is in parenthesis. Translations are in quotes.

(7) ….*dänn hät är gseh sin Frosch im Wasser, Ø und…* English word order
[..*dänn hät är sin Frosch im Wasser (gseh), und…*]

"…then he saw his frog in the water, and…"

(8) …because he *before* felt sad. German word order-adverb
[…because he felt sad (before).]

"…because he felt sad before."

(9) …and they both *did look* at the frog. German morphology
[…and they both (aux/past + look) at the frog.] (English emphatic 'do' not intended)

"…and they both looked at the frog."

(10)…a gopher came out of a hole in the *floor*. (false translation of 'Boden')
(…a gopher came out of a hole in the (ground).)

"…a gopher came out of a hole in the ground."

The examples illustrated above are all typical for the current English/Swiss German data set. Calques occurred in instances in which there was a translation of non convergent syntax between the two languages. Since the two languages could not map onto each other, as described in Poplack's equivalence constraint, intrasentential code switching was not likely to occur. What the children often did in this case was to take the word order of one of the languages and fill in the

words from the other language. In this way the children mixed the languages but did not use intrasentential switching, because it was precluded by the structure of the two interacting linguistic systems. Two calques were very common, and elicited awkwardly formed utterances from a monolingual viewpoint. The first form arose in situations where genitive case would be expected. The English possessive does not have an equivalent counterpart, and in fact Swiss German syntax is not particularly economical when it comes to genitive forms. For example, the English phrase, "the lady's glass" does not have a transparent equivalent. Using English lexical forms, the two options for Swiss possessive construction of this phrase are as follows:

(11) *"*the glass of the lady"

[ *s Glas vo de Frau* ]

" the lady's glass"

(12) "the lady her glass"

[*de Frau ires Glas* ]

"the lady's glass"

Both types of possessive statements in (11) and (12) above were noted in the corpus. Another calque form that was commonly elicited occurred in subordinate constructions. The examples below are typical:

(13) …because he wanted *that* the deer *lets* Tom down. (present tense verb)

"…because he wanted Ø the deer to let Tom down."

(14) …he wanted *that* the deer *would* stop. (conditional verb)

"…he wanted Ø the deer to stop."

In Swiss German, the subordinate conjunction, ('*dass*', in this case, translated as 'that') introduces the clause, and the conjugated verb comes at the end of the phrase. In English this is not the case; there is no surface subordinating conjunction, and the verb is used in the infinitival form.

The Swiss German speakers substituted either the present tense or a conditional verb followed by an infinitive. The subordinate construction was problematic for many of the children, and calques associated with it occurred much more frequently in the bilingual and code switched conditions. They were also elicited more often in the question format.

### 3.3.2 Elicitation Format - Narratives vs. Questions

#### 3.3.2.A Intrasentential Switches

Narrative and question formats were compared to see if either format was more effective in eliciting data. Paired Samples 2-tailed *t*-tests were used to compare the paired differences in the means between the two formats for intrasentential switching. Intrasentential code switches were the dependent variable and elicitation format (narrative or question) was the independent variable. At $\alpha = .05$, the results indicated that there is a non significant difference between the two means: $t(33) = .764$, $p = .45$. It is therefore concluded that elicitation of intrasentential switches in the narrative format (mean = .68, SD = 1.45) was not significantly different than elicitation in the question format (mean = .47, SD = .90).

#### 3.3.2.B Intersentential Switches

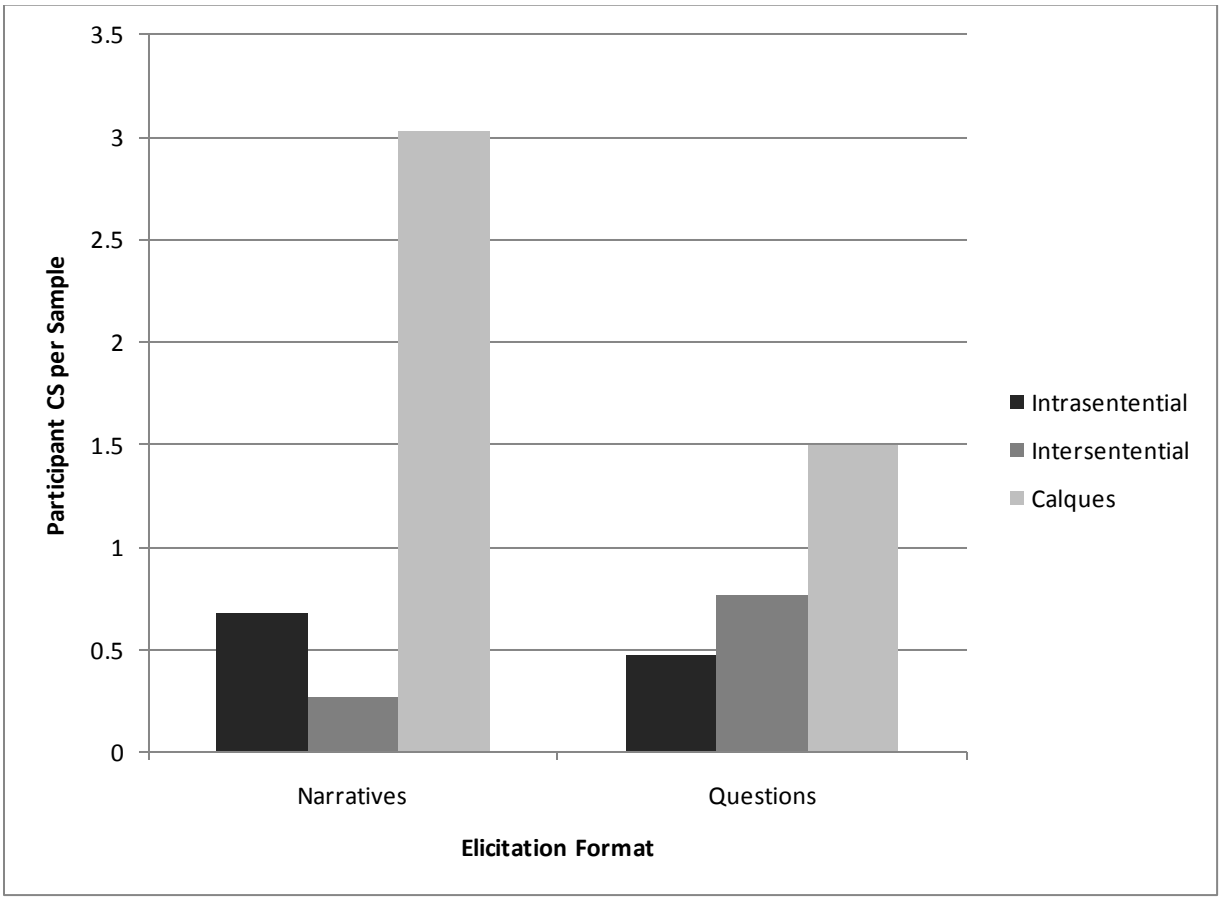
Narrative and question formats were compared with respect to elicitation of intersentential switches. In order to ascertain whether the narrative or question format was more effective in eliciting intersentential code switches, data were analyzed using 2-tailed Paired Samples *t*-tests at $\alpha = .05$. Intersentential code switching was the dependent variable and elicitation format was the independent variable. Although the question format elicited more intersentential switches than narratives, the null hypothesis that the paired mean differences are equal cannot be rejected: $t(33) = 1.489$, $p = .146$. It is concluded that there was no significant difference in the effectiveness of narrative (mean = .26, SD = .57) and question (mean = .76, SD = 1.83) formats to elicit intersentential code switching.

#### 3.3.2.C Calques

Narrative and question formats were again compared for calques. In order to determine whether either format was more effective in eliciting calques, 2-tailed Paired Samples *t*-tests were again utilized at $\alpha = .05$. Analysis of the paired mean differences for calques in the two formats revealed that the null hypothesis of no differences between means must be rejected: $t(33) = 2.452$, $p = .02$. It is concluded that the narrative format (mean = 3.03, SD = 5.04) was significantly more effective in eliciting calques than the question format (mean = 1.5, SD = 2.36).

Figure B. illustrates the distribution of code switching types elicited for the narrative and question formats. It is clear from the figure that the narrative format effectively elicited a significantly higher number of calques. The amount of intra- and intersentential code switching elicited by the narrative and question formats was relatively equivalent.

**Figure B. Elicitation of Code Switching Types by Elicitation Format**




### 3.3.3 Time Required for Elicitation

Although calques were elicited in greater number in the narrative format, comparison of the narrative and question formats revealed that for intra- and intersentential code switching, there was not a significant difference in the amount of switching that was elicited. This is, in itself, significant when the expenditure of time to collect data is considered. The time needed for narrative data collection was significantly longer than for question collection. This will be further elaborated in the current section. Table 9 provides a comparison of the two formats for code switch types elicited and for time expended in each format.

**Table 9. Comparison of Two Elicitation Formats**

| Format | mean elicitation time (minutes/sample) | Intrasentential (switches/sample) | Intersentential (switches/sample) | Calques (switches/sample) |
|---|---|---|---|---|
| Narratives | 2.66 | .68 | .26 | 3.03* |
| Question | 1.46** | .47 | .76 | 1.50 |

* significant, $p < .05$; **significant, $p < .01$

Tabulation of elapsed time for the three conditions revealed that the average amount of time required to collect the sum of all three narrative samples was 7.97 minutes per participant. This represents a mean collection time per narrative sample for each participant of 2.66 minutes. For collection of comprehension question responses, the average was 4.38 minutes per participant for the sum of the question sessions. The per sample mean collection time for each participant was 1.46 minutes in the question format.

Comparison of the amount of time required to collect data in the narrative versus question format was analyzed using 2-tailed Paired Samples *t*-tests, $\alpha=.05$. Time was the dependent variable and elicitation format was the independent variable. According to the analysis, the null hypothesis that the narrative and question formats were equal in mean time consumed must be rejected: $t(33) = 10.09$, $p = .001$. Therefore it is concluded that the question format (mean = 1.46, SD = .22) required significantly less time than the narrative format (mean = 2.66, SD = .80).

It was possible to arrive at a rate of code switching by dividing the mean number of switches per sample by the average length of time expended for each elicitation session. The table reflects the rate of switches produced per minute. These switch rates can be used to compare observed frequency of switching in this study to other studies in the literature (see section 3.4). Data are displayed in Table 10.

**Table 10. Efficiency of Elicitation by Format in Switches per Minute (spm)**

| Format | Intrasentential - spm | Intersentential - spm | Calques - spm | Total spm |
|---|---|---|---|---|
| Narratives | .25 | .10 | 1.14 | 1.49 |
| Question | .32 | .53 | 1.03 | 1.88 |

The preceding section has presented results which answer the experimental question: "Can code switching be elicited in school aged children?" The elicitation conditions produced significant increase in all three types of code switching, and will be further elaborated in the following section.

# 3.4 Discussion of Elicitation Results

### 3.4.1 Incidence

Incidence rates for code switching were very low. This was an expected result, as numerous studies report low incidence. The low frequency of code switching incidence was reflected in the review of studies outlined in Table 1. An advantage of the present study is that the low frequencies of code switching that were collected in the monolingual first condition provide a baseline to which valid comparisons of the two experimental elicitation conditions may be made. In fact, what is provided here is a baseline frequency for school aged bilingual children with this particular language pair, and a demonstration that the environment could be manipulated in order to change linguistic behavior.

Incidence of calques was much higher than the other two types. More speakers used calques than any other type, and calques appear to be more universal in the speech of bilingual children than may have been thought. Consideration of calques as a type of code switching may be considered controversial by some researchers. However, the high incidence of calques used by children relative to other language contact phenomena indicates that calques are an important component of bilingual discourse. With respect to the evaluation of the ability of an elicitation protocol to activate bilingual mode, an increased number of calques would seem to signify an increase in the amount of bilingual processing, thus indicating activation of bilingual mode.

### 3.4.2 Efficiency

The numbers here represent code switching drawn from a sample which was relatively brief in comparison to most studies discussed in this review. The protocol in the current study was efficient in terms of time expended. Although the rates of occurrence were low, many tokens were elicited in a short period of time. Table 10 shows switching rates for the various types. Although switching rates of .10 – 1.14 switches per minute may seem miniscule, when converted to hourly rates, they would compare favorably to rates reported by other studies. For example, if one were to consider only the sum of intra- and intersentential switches for narrative data, it would convert to 21 switches per hour. This is would be within the range which Zentella (1990a) reported (0-27 switches/hour, depending on the context) in her naturalistic data collected over two years' time. Following the same conversion formula, the hourly rate for the sum of intra- and intersentential

switching in the question format would be 51 switches per hour, almost twice what Zentella reported.

The efficiency of the question format alone is a promising outcome in the study of elicitation methodology. Compared to narration, it was equally effective in eliciting intra- and intersentential data, yet required significantly less time. It is possible that one could omit the narrative part altogether, simply presenting the story and following up with the comprehension questions in the experimental conditions. Without the need to transcribe and analyze an entire narrative, the question format is a promising time-saving alternative and could turn out to be an efficient tool to generate data. This suggestion would need to be validated in a formal study; it is not possible to know at this point whether the questions alone would generate the same amount of data as the narratives and question format together. It is possible that the narrative retell is a precondition which sets the speaker up to produce utterances in the code switched mode during the question format. If this is indeed the case, the narrative retell could be taken but would not necessarily need to be transcribed and scored; data could be tabulated from responses in the question format alone.

### 3.4.3 Optimizing Elicitation

There was no 'most effective' elicitation condition across the board for all three types of code switching studied. What can be stated categorically is that the monolingual baseline condition was least effective in eliciting all types of code switching. In section 3.3 the point was made that definitions of code switching vary among researchers and that investigators spotlight different types of code switching depending on theoretical focus of the study. Thus, it seems helpful to discuss the effectiveness of elicitation conditions in light of the targeted type of code switching. This section will discuss the three code switching types related to which combinations of elicitation condition and format are most successful.

For intrasentential code switching, both the bilingual and code switched conditions appear to be equally and significantly effective in eliciting data. There was no significant difference in the amount of intrasentential switching elicited in narrative elicitation compared to elicitation in questions. This result, in light of the aforementioned shorter duration of time required by the question format, indicates that the question format in either or both experimental conditions could be used as a successful and efficient elicitation method.

For intersentential code switching, the data revealed that switching increased significantly with the activation and modeling provided in the code switched condition. Comparison of the amount of intersentential switching elicited in the narrative versus question formats again revealed

that the values obtained were not significantly different. However, the nature of the question format did provide many more opportunities for intersentential switches than a narrative discourse. Figure B illustrates that, although the results were not statistically significant, the trend was toward increased intersentential switching in the question format. Considering the economy of time that collection via the question format affords, as discussed above for intrasentential switching, we can conclude that the potential benefit would apply to collection of intersentential code switching data as well. So, it appears that optimal elicitation of intersentential switching can be achieved by use of the code switched condition, optionally with use of the question format alone.

For calques, results demonstrated that the bilingual condition was significantly effective in elicitation; more so than the code switching condition. The narrative format also elicited calques in significantly higher numbers than the question format. If an investigator were interested in eliciting calques, it appears that the most effective way of doing so would be to utilize the bilingual condition in combination with the narrative format. In this scenario, the question format would perhaps not be necessary.

Calquing has been associated with language attrition (Schmitt, 2000, Smith, D., 2006, Bolonyai, 1998, Seliger, 1989). In this study, calquing was seen to increase across the board, not just with those subjects who were at risk for attrition. The use of calques increased in response to different elicitation conditions and formats, for all subjects. If the mode of discourse can increase the amount of calques, the perspective that they represent either the interlanguage of acquisition or a harbinger of attrition must be challenged. Calques will be discussed in greater detail in the typology review (Section 4).

### 3.4.4 Contrasting Bilingual and Code Switched Elicitation Conditions

It was of interest to see if the activation and modeling in the code switched condition would affect the amount of data elicited in greater measure than simple bilingual discourse. Intersentential code switching increased in response to the code switching condition, but the code switching condition was not more successful than the bilingual condition in eliciting intrasentential switches and calques.

It is not readily apparent why this is the case. For calques, it could be postulated that they are the least sophisticated type of switch behavior (as evidenced by the fact that many researchers do not classify calques as true code switches), and that calques were activated by the less sophisticated of the bilingual experimental conditions; that is to say, the code switched mode was linguistically more sophisticated and gave rise to forms which were more linguistically demanding

than calques. This line of thinking, however, assumes that calques are somehow 'inferior' to intrasentential switches and appears to devalue the processing required to produce calques. (This will be further demonstrated in Section 5.2.2). Though it *could* be argued that intrasentential code switching requires a higher level of linguistic analysis and processing than calques, it would be hard to argue the same in the case of intersentential code switching. Assuming for a moment that the logic is sound - that complex conditions would elicit more complex forms, and the corollary that less sophisticated conditions ought to elicit less complex forms, one would expect that intersentential switches would have been elicited in greater numbers in the bilingual condition, not the other way around. Clearly, this line of reasoning does not suffice to explain the results; further investigation of this finding is warranted.

It is possible that with a larger sample size, trends in the data would become significant. The statistical analysis in this section was affected by large standard deviations, which are generally decreased with greater sample size. The order of the trials could have also had an effect. Perhaps the results would be different if the code switched condition had been introduced first after the baseline condition. It could be that the novelty of bilingual discourse of any type, whether code switched or not, produced an initial increase in the rates of switching. A possible interpretation is that once the introduction of the bilingual mode was established, the children became familiar with the linguistic setting, and intrasentential and calque switch rates settled down to lower levels as the 'novelty' wore off. This possibility, however, would not be suggested by the results reported by Comeau, Genesee, and Lapaquette (2003). They examined younger children's rates of code switching (which they refer to as mixing) in accordance to the amount of switching modeled by the interlocutor. These preschool children's code switching rates were compared in three trials, the first in which the interlocutor used low rates of code switching. In a second session, the interlocutor used higher rates of switching, and children's switching rates increased as the interlocutor's did. A third session was conducted wherein the interlocutors used the lower rate again, and the children's rates decreased, albeit not to the lower rate of the first trial. This would suggest that the 'novelty' of a change in the switching rate was not the driving factor; rather, the children's propensity to switch was activated such that they were more likely to switch in the third trial than in the first, even though the interlocutor's rate of switching was the same. It is notable that in the Comeau et al. study the children were much younger, were simultaneous learners, and were all within the first critical period for bilingual learning. The current study investigates children who are significantly older, some of whom are operating within the second critical period for second language acquisition. It may not be a valid assumption to compare the two groups. Additionally, the Comeau et al. study considered intra- and intersentential switches together. In fact, the children's switching was

reported to be 57.14% to 100% intersentential (they use the term 'interutterance'), with reciprocal rates of intrasentential switching (42.86% - 0%). Accordingly, their results could be more parallel to the trends in this study if intra- and intersentential switches had been analyzed separately. Nonetheless, why calque and intrasentential switches are not elicited in greater number by the code switched condition is still not clear.

An additional conclusion of the Comeau, Genesee, and Lapaquette (2003) study was that children adjusted code switching not only in response to overall switching rates of the interlocutor, but also on a turn-by-turn basis. That is to say, the children's likelihood of switching was affected not only by the code switched mode of the discourse in general, but was likely to match the interlocutor's previous turn, whether switched or not. Application of this finding to the current study has two implications: first, that the children's responses to the questions in the code switched condition of the current protocol can be examined on a turn-by-turn basis; second, since the question format of the code switched condition included numerous between turn (intersentential) switches, the children were afforded many more opportunities to match the code switching of their interlocutor. This suggests that the increase in intersentential switching for the code switched condition can be at least partially explained by the increased modeling of intersentential switching in the code switched condition, combined with the type of matching on a turn by turn basis as was suggested by the Comeau et al. study.

Toribio (2001) examined code switching in adults using a narrative format. She discussed the concept of well-formed versus ill-formed code switching. Participants were asked to read two types of code switched fairy tales. In one case the code switched narrative was well-formed (that is, grammatically acceptable according to grammaticality judgments made by bilingual speakers in separate interview). In the other case the switches were ill-formed (seen as violating grammaticality as judged by bilingual speakers in separate interview). Another part of her study required participants to choose one of the stories to retell. She found that when adult bilingual speakers were reading the ill-formed fairy tale, there were numerous examples of the speakers demonstrating disfluency in the form of pauses, false starts, and even laughter. Some also were noted to 'correct' the ill-formed switches even as they were reading, without being aware of their corrections. Those who chose to retell the ill-formed story were not noted to replicate the ill-formed switches in the original story.

In the present study, the peer examiners had difficulty staying 'on-script' for some of the code switched questions, even though these questions had been composed and approved by native

speakers[6]. Review of the questions in the code switched protocol identified four to five questions which could possibly be viewed as ill-formed, according to generally accepted standards in adult code switching (Toribio, 2001:419). For example, some researchers argue against the acceptability of a switch between a determiner and a noun. There were three instances of this switch in the suspected ill-formed questions (Questions 1, 2 and 4). Another form which is not supposed to be acceptable is a switch between an auxiliary and its verb. Question number 5 (see Appendix C) however, contained a switch between an auxiliary and the verb. In terms of examiner performance, Questions 2 and 3 (and not 1, 4, or 5) presented particular difficulty to the examiners in the form of disfluent pauses, restarts, and repairs.

A possible explanation as to why the code switched condition did not elicit more intrasentential switching and calques is that the children in the study may have responded differently to the questions that were presented using 'acceptable' code switching than to those which modeled 'ill-formed' code switching. In contrast, the code switched condition produced an increase in intersentential switches; the instances of this type of switch modeled were all well-formed[7]. Perhaps the failure to elicit increased numbers of calques and intrasentential code switching in the code switched condition could be attributed to the children not responding to 'ill-formed' code switching models. However, there were no fewer calques and intrasentential switches after the 'ill-formed' Questions 1, 2 and 4 (switch between determiner and noun) compared to well-formed questions such as 3, 6, and 10, for example. Responses to the 'ill-formed' Question 5 (switch between auxiliary and verb) actually revealed more intrasentential switches than 7 of the other questions and more calques than 6 of the other questions. An item by item analysis of the children's responses in the code switched question format failed to show evidence that calque and intersentential code switched responses were less frequent following ill-formed stimuli compared to well-formed stimuli.

This section has explored the differential responses for the bilingual and code switched conditions. It is difficult to conclusively explain why, for the two conditions, there were significant differences in the amount of intersentential code switching elicited, while significant differences in elicitation of calques and intrasentential switches were not noted between the bilingual and code switched conditions. An important finding which must not be overlooked is that both of the experimental conditions elicited significantly more code switching than the baseline monolingual

[6] This brings into question the reliability of grammaticality judgments by both adults and children. The speaker who was the examiner in the final trial for most of the participants was himself one of two students who were asked to write the questions at the outset.

[7] Note here that it would be difficult to describe 'ill-formed' intersentential switches – the switch is either made at a sentence boundary or not; 'errors' in intersentential switching are possibly nonexistent.

condition. One of the research questions at the outset was to determine *whether* the code switched condition would elicit more code switching than the bilingual condition through modeling. It must be considered that the bilingual and code switched elicitation conditions are variations of the same overall bilingual mode, as opposed to monolingual mode. The two experimental elicitation conditions in relation to language mode will be further elucidated in section 5.2.1.

## 3.5 Directions for Continued Investigation

As mentioned in the discussion section, it is not altogether clear why the code switched condition did not elicit increased amounts of intrasentential code switching compared to the bilingual condition. It seems somewhat counterintuitive that modeling would not have had a positive effect on bilingual children. Perhaps a repetition of this study with more syntactically controlled test items, or strategically placed semantic triggers in the examiner's code switched discourse might aid in the generation of code switched responses. In addition, if the examiners were provided with increased training time to practice the code switched scripts, they would possibly have had improved fluency. It would be interesting to see if the children would respond differently to greater fluency on the part of the examiners.

In the current study, of course, each elicitation condition was part of a series of sessions. One cannot be sure whether the progression of conditions from monolingual through increasingly bilingual, to code switched modeling mode, was a major or minor variable which contributed to the success of the elicitation. In addition, the series of sessions were designed so that the children would be speaking with increasingly more 'in-group' and informal interlocutors. It would be impossible to claim that a particular format (narrative/question) from a particular condition (bilingual/code switched) would be effective without first testing it in a separate study outside of the progression of trials that were intrinsic to this study.

A possible variation of this study would be to conduct concurrent trials using the bilingual condition with half of the subjects, and the code switched condition with the other half. This would control for the question of whether there was an order effect for bilingual versus code switched conditions in the current study. At the same time, if the same story were used for both conditions, it could also control for variability of syntactic constructions in the story so that whatever intra-, intersentential switches or calques were elicited could be associated with the same stimulus syntax and lexical content.

# *Section 4 – The Typology Study*

The current study has examined elicitation of code switching in school aged bilingual children. A next logical step is to examine that which has been elicited. The study so far has evaluated the elicitation technique which produced a quantity of three types of code switching. In addition to calques and intersentential code switching which have been considered thus far, there are several subtypes of intrasentential code switching which have been described but not yet considered independently from one another. Deeper investigation of code switching types can broaden the base of understanding which we are endeavoring to build. In addition, not all bilinguals are alike. There are subgroups which can be differentiated by their acquisition profile, proficiency, sociolinguistic environment, language in the home or school, maintenance of both/all languages, and personality characteristics such as attitudes toward switching. We know that not all bilinguals use the same patterns of code switching. At this point, we now can take the opportunity to examine what kinds of bilinguals use which types. Section 4 will address this question.

In this section speakers who switched code will be contrasted with those who did not. In section 4.3, code switching will first be reported in relation to two continua of bilingual speakers: type of acquisition, and level of proficiency. A quantitative analysis will detail the use of particular *code switch subtypes* by particular *subgroups of speakers*. Second, a descriptive analysis of the interaction between acquisition profile, proficiency and code switching behavior will be provided. Ratios of code switch subtype use will be described for six different speaker subgroups. These patterns of code switch use (or non use) will be referenced in the discussion section 5.3, when a developmental sequence of code switching is discussed.

Section 4.4 will provide a review and discussion of the typology study results. Patterns of code switching with reference to each of the six subtypes will be used to describe a profile for those speakers who did not switch. For speakers who used code switching, each of the six subtypes of code switching will be discussed; differential patterns of usage for each type will be described in relation to subgroups of bilingual speakers. Results of this study are compared to existing published results.

## 4.1 Participants

Of the original 40 subjects, data from the three participants who did not complete the elicitation study were included. (Two of these participants were not included in the elicitation study

because they had helped construct the code switched narrative and questions used in the final condition. The other participant had been unable to complete all trials in the elicitation task.) However, their results from the conditions completed were included in the typological study. Usable data from the two participants with tape malfunction were also added to the corpus for analysis, for a total of 39 participants[8]. Because the focus of this section is on the type of code switch produced, code switching data from all four trials (familiarization, baseline, bilingual condition and code switched condition) were included in the corpus, irrespective of which condition elicited the switches. In the current section the primary concern is to investigate which subgroups of bilinguals used which types of code switching.

#### 4.1.1 Speaker Subgroups

In this section bilingual speakers will be considered from two perspectives. First, bilingual children will be subdivided from the point of view of acquisition type: simultaneous and sequential learners, as identified by parental report. Second, proficient speakers will be identified and contrasted with non-proficient speakers for the use of code switching types. As outlined in the previous section, non-proficient individuals were defined as those who were classified as weak in either of the two languages studied. Children who were identified as proficient were classified as either moderate or strong in each of the two languages. (See Table 3.) The corresponding patterns of code switching type use will be described and contrasted for these two subgroups of speakers.

## 4.2 Additional Measures

#### 4.2.1 Profiles of Code Switching Type Use

In section 3, four subtypes of intrasentential code switching were identified, yet considered as one class of code switching for the elicitation review. At this time I will consider these four subtypes of intrasentential code switching (single words, phrases, mazes and hybrid words) and evaluate whether the amount of each type varied in usage for subgroups of bilinguals. In combination with these intrasentential subtypes, patterns of use of intersentential code switching and calques will be considered to determine whether profiles of code switching type usage can be associated with bilingual subgroups.

## 4.3 Results – Typology

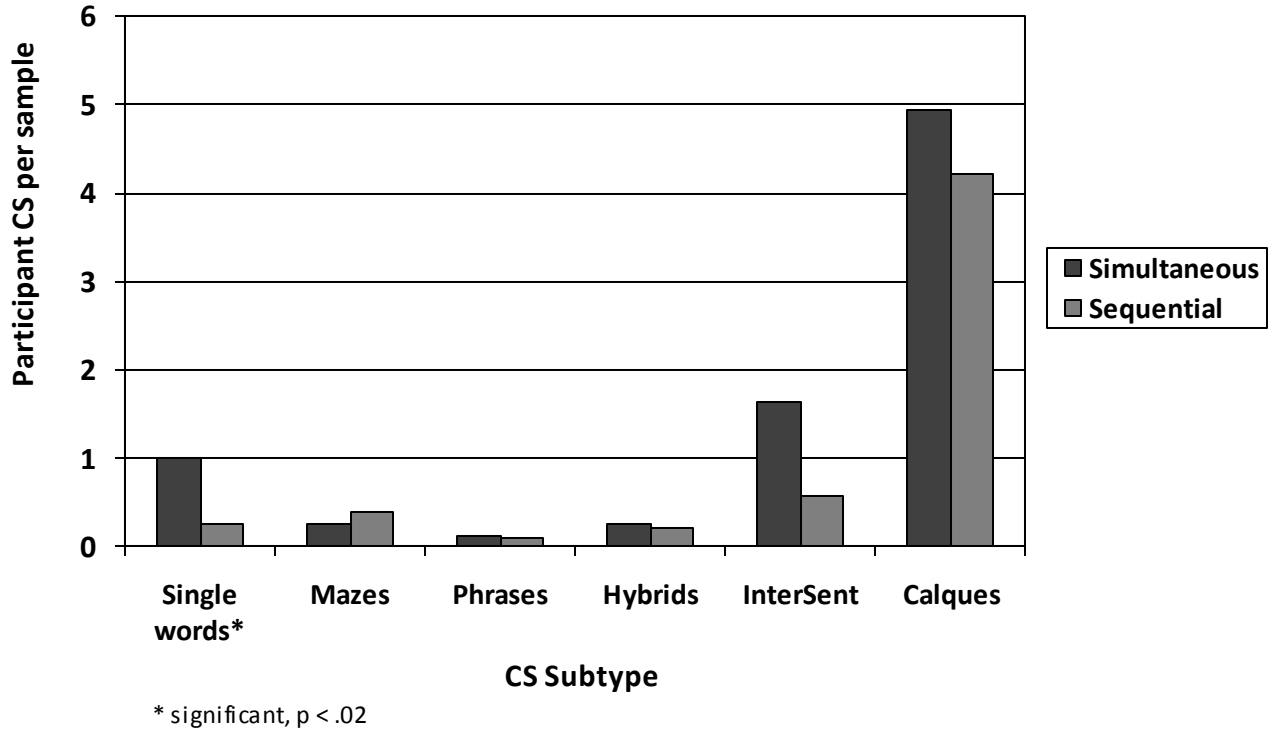
#### 4.3.1 Speakers who Switched Code

##### 4.3.1.A Simultaneous vs. Sequential Acquisition

[8] The same participant who was excluded because of suspected language disorder/delay in the elicitation study was also excluded from the analysis of typology. His (outlier) results will be considered elsewhere.

In order to answer the question regarding whether there exist patterns of code switching type use that correspond to subsets of multilingual children, participants were first divided into subgroups according to their acquisition profile. 16 simultaneous learners were compared to 23 sequential learners for the 6 code switching types identified. In order to ascertain whether there were differences in the amount of code switching used for the two acquisition groups, a multivariate analysis of covariance (MANCOVA) was conducted, with age in months as a covariate. The amount of within subject use for each of the 6 code switch types were the dependent variables and the factor was the type of acquisition, either simultaneous or sequential. Results indicated a significant multivariate difference: Wilks' $\Lambda$ = .664, F (6, 31) = 2.617, $p$ = .036, partial $\eta^2$ = 336. Age was not a significant covariate, F (6, 31) = .601, $p$ = .727, partial $\eta^2$= .104. Univariate analyses of variance (ANOVAs) were conducted to determine which of the 6 subtype categories contributed to the significant MANCOVA results. The ANOVA results revealed that there was a significant difference between the two subgroups in the use of single word code switches, with the simultaneous speakers using a higher number (mean 1.00, SD 1.26) than sequential speakers (mean .26, SD .54): F (1, 36) = 6.274, p =.017, partial $\eta^2$ = .148. Differences for the five other types of code switching were not significant. Results are graphically displayed in Figure C. Note that the pattern of use for the 6 types was similar for both simultaneous and sequential learners, with no significant differences except the single word code switches discussed in this section.

**Figure C. Mean Number of CS per Type for Simultaneous and Sequential Learners**



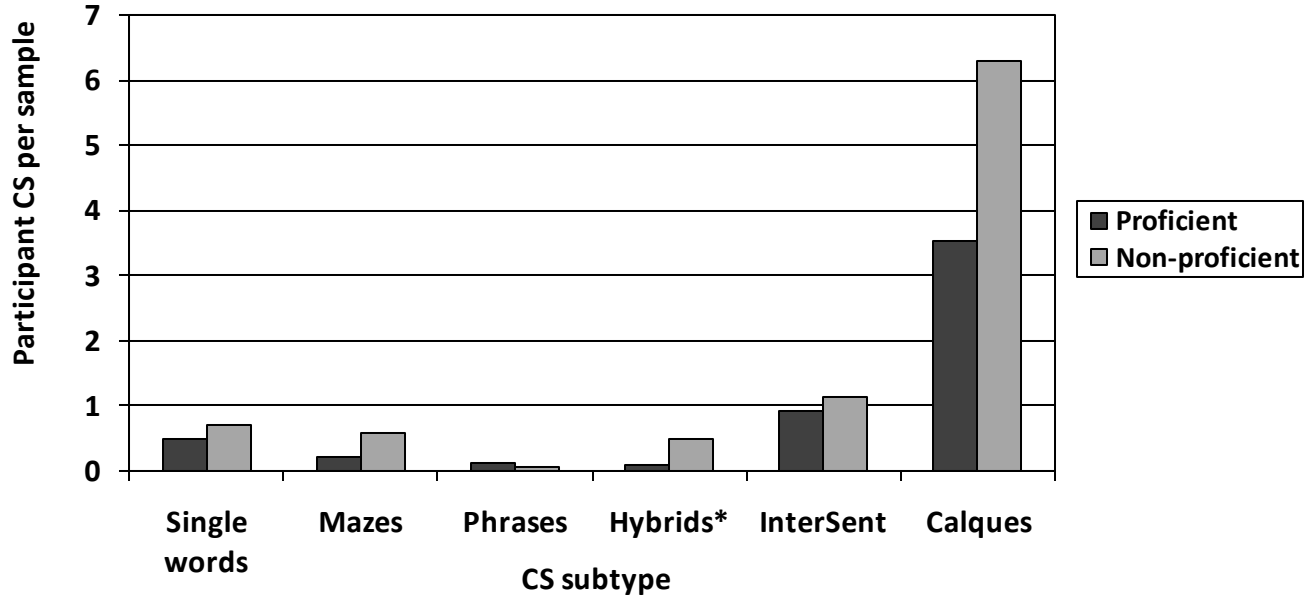

* significant, p < .02

#### 4.3.1.B Proficient vs. Non-proficient Speakers

The second part of the analysis considered two different subgroups, based on proficiency. 25 proficient and 14 non-proficient speakers were compared in the amount of use of the 6 code switch types. A MANCOVA was conducted, with switch types being the dependant variables, proficiency level (proficient, non proficient) as the factor, and age in months as a covariate. Results indicated a non significant multivariate difference: Wilks' $\Lambda$ = .699, F (6, 31) = 2.226, $p$ = .067, partial $\eta^2$= .301. Age was not a significant covariate, F (6, 31) = .428, $p$ = .855, partial $\eta^2$= .077. Jaccard and Guillamo-Ramos (2002) have criticized the multivariate approach, because it assumes a complete null hypothesis – that is, that the effects should either not occur on any of the dependent variables, or should occur on all of them. A partial null hypothesis would allow for the possibility that an observed effect could occur on some of the variables but may not occur on other variables. Accordingly, univariate ANOVAs were performed to ascertain whether the two groups (proficient, non-proficient) differed in their use of *any* of the 6 code switch types. Results indicated that non-proficient speakers (mean .50, SD .760) used significantly more hybrid code switch forms than proficient speakers (mean .08, SD .277): F (1, 36) = 4.889, $p$ = .033, partial $\eta^2$ = .12. Differences between groups for the other 5 code switch types were not significant.

These results are presented in Figure D. Note that the distribution pattern and relative use of each subtype of code switching was similar for both proficient and non-proficient speakers, with the exception of the Hybrid code switches discussed in this section.

**Figure D. Mean Number CS per Type per Speaker for Proficient and Non-proficient Bilinguals**



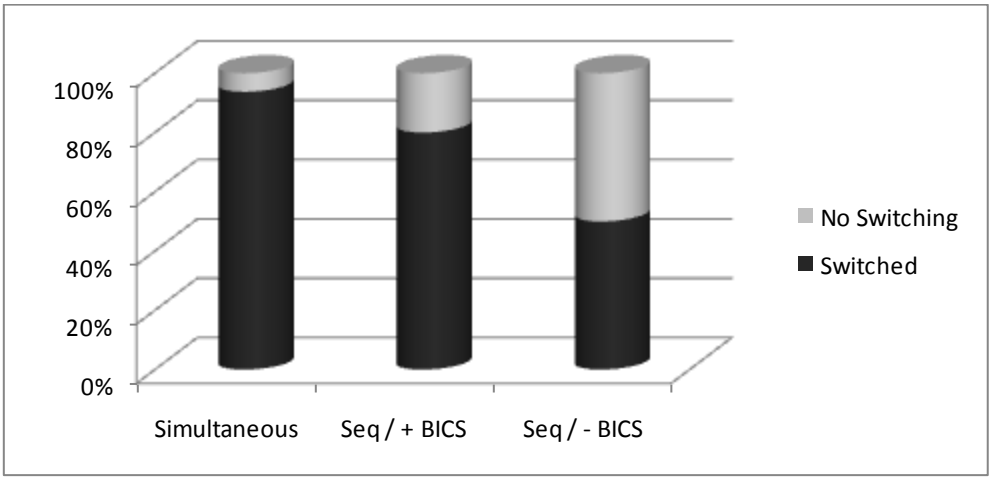

* significant, p < .04

### 4.3.2 Speakers who did not Switch Code

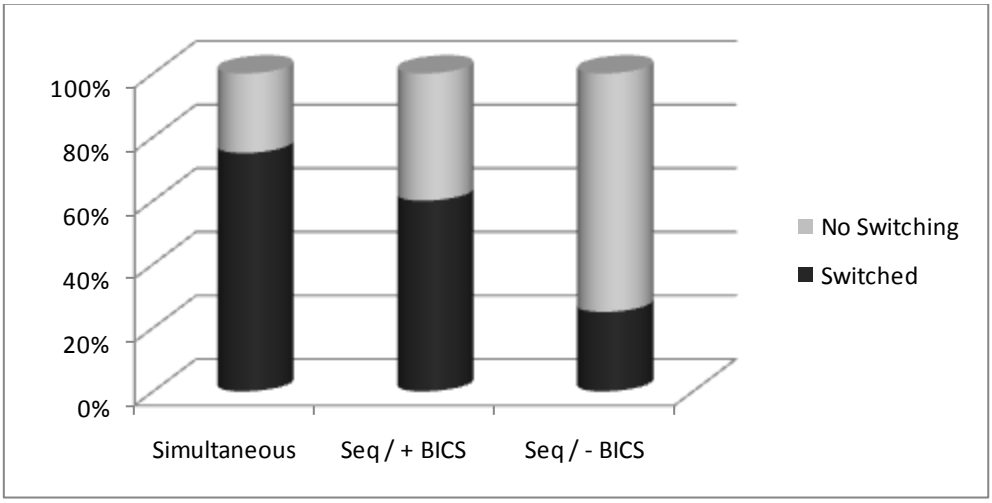
In addition to analyzing of the code switch data that was elicited for the two groups, it is important to examine those speakers who did NOT switch. 18% of the speakers (7 of 39) in the sample did not use any of the 6 types of code switching. Switch disposition, defined as the percentage of the speakers in the subgroup who used any switches, were computed for the different acquisition types. It was further noted that within the group of sequential learners, there was a difference in propensity to switch between those sequential learners who were presumed to have acquired Basic Interpersonal Communication Skills (BICS) (Cummins, 1981, Roseberry-McKibbon, 2002) and those who had not. BICS competence is assumed to be achieved after 2-3 years' exposure to the new language, (Roseberry-McKibbon, *ibid*). The criterion used in this study to assign a label of [+BICS] was a minimum of three years' exposure to the sequentially acquired language. Switch dispositions were as follows for the 6 code switch types: simultaneous speakers, 93.75%, sequential [+BICS], 80%, and sequential [- BICS], 50%.

It was noted that the participants from all subgroups utilized calques in the bilingual and code switched modes. In fact, 30 of 39 speakers, or 77%, used calques. Since calques appeared across the board in general, it was of interest to see what switching patterns emerged when calques were eliminated from consideration. 16 participants (41% of the sample) were identified who did not use any form of intrasentential or intersentential switch. In order to better understand the composition of the group of speakers who did not switch, switch dispositions were computed for the three acquisition subgroups (for the 5 remaining code switch types, excluding calques): simultaneous speakers, 75%, sequential [+BICS], 60%, and sequential [-BICS], 25%. Switch dispositions for the three acquisition groups, comparing use of 6 code switch types and 5 code switch types, are illustrated in Figure E.

**Figure E. Speaker Switch Disposition for 6 CS Types**



**Speaker Switch Disposition for 5 CS Types**




In both figures it is apparent that sequential speakers who have not acquired BICS competency are much less likely to switch than other bilingual speakers. This is a factor to take into consideration when attempting to describe profiles of bilingual children based on their code switching behavior.

### 4.3.3 Acquisition Proficiency

The preceding analysis of proficiency relates to proficiency in terms of performance on standardized tests and teacher questionnaire. Description of the subgroups which did not use code switching revealed that there is another variable involved that affects switching, specifically what type of acquisition the speaker experienced and where the speaker currently was in terms of the amount of time he or she has had to acquire the language(s). This view of proficiency shall be referred to as acquisition proficiency. Sequential learners have already been subdivided into [+BICS] (acquired) and [-BICS] (not acquired). Simultaneous speakers in this study, who were all 5 years of age or older, had all exceeded the minimum exposure time of three years for BICS competence and thus are by definition considered to have acquired both languages ([+BICS]). It is possible to present results so that both performance and acquisition proficiency can be represented, using a six-cell matrix. In this matrix, three types of acquisition are represented in the three rows of the matrix. Two levels of proficiency, as measured by performance, are represented in the columns of the matrix. Cells have been numbered in Table 11 for easier comparison in forthcoming discussion. Table 12 identifies the number of participants in each cell of the matrix. Note that with the subdivision of the sequential speakers into acquired [+ BICS] and still acquiring [- BICS], the number

of participants in each cell becomes relatively small for some cells. For this reason, data from this point are better suited to descriptive analysis.

**Table 11. Six Cell Matrix Representing Proficiency in Conjunction with Acquisition Mode**

| | Proficient | Non-proficient |
|---|---|---|
| Simultaneous [+BICS] | Cell #1 | Cell #2 |
| Sequential [+BICS] | Cell #3 | Cell #4 |
| Sequential [-BICS] | Cell #5 | Cell #6 |

**Table 12. Number of Participants (n) in Each Cell of the Acquisition/Proficiency Matrix**

| | Proficient | Non-proficient |
|---|---|---|
| Simultaneous [+BICS] | n = 13 | n = 3 |
| Sequential [+BICS] | n = 10 | n = 5 |
| Sequential [-BICS] | n = 2 | n = 6 |

### 4.3.4 Distribution Patterns

The distribution of code switch types within the data corpus provides another insight into the patterns of code switching for the subgroups studied. Using the six-cell matrix, pie charts are used to display the distribution/ratio of code switch types used. The four intrasentential code switch subtypes have been considered collectively in order to make patterns more apparent. The percentages of use of code switch types are represented in Table 13 and the six cell matrix in Figure F.

**Table 13. Distribution of CS Types for the Acquisition/Proficiency Matrix**

| Matrix Cell | Description | Intrasentential CS | Intersentential CS | Calques |
|---|---|---|---|---|
| 1 | Simultaneous/Proficient | 16.85% | 16.85% | 66.29% |
| 2 | Simultaneous/Non-proficient | 26.19% | 26.19% | 47.62% |
| 3 | Seq [+BICS] / Proficient | 19.44% | 16.67% | 63.89% |
| 4 | Seq [+BICS] / Non-proficient | 17.28% | 6.17% | 76.54% |
| 5 | Seq [-BICS] / Proficient | 0% | 0% | 100% |
| 6 | Seq [-BICS] / Non-proficient | 14.28% | 0% | 85.71% |

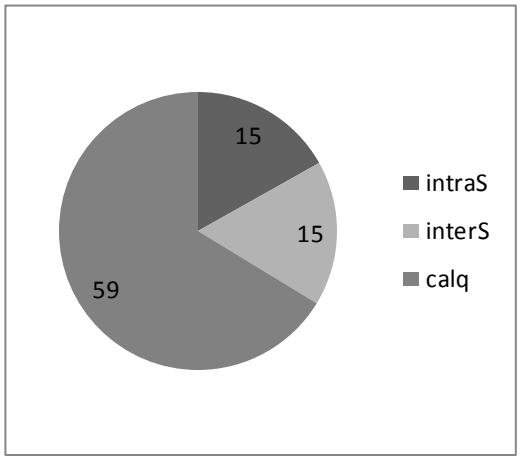
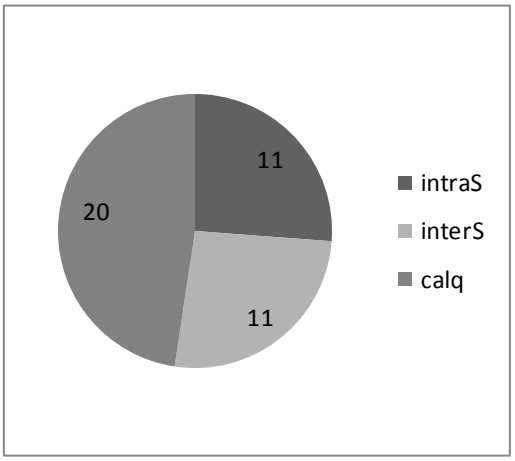
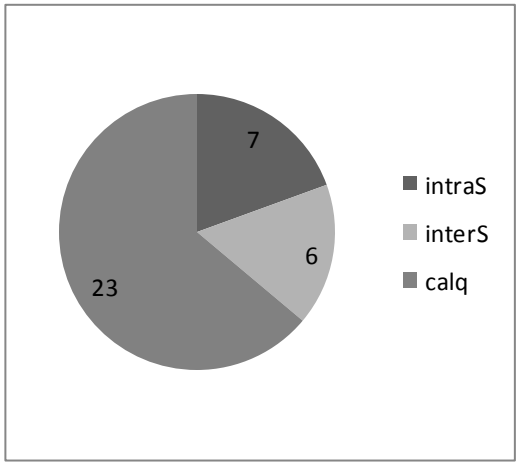
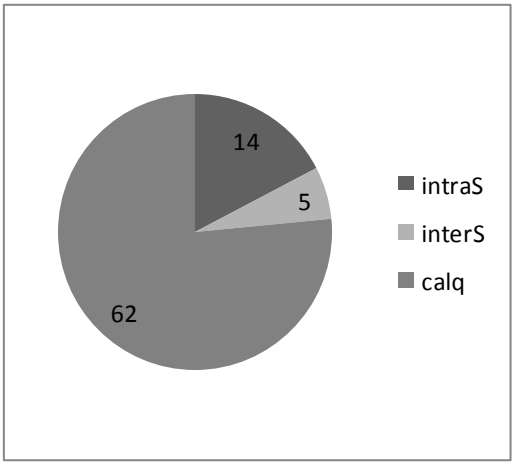
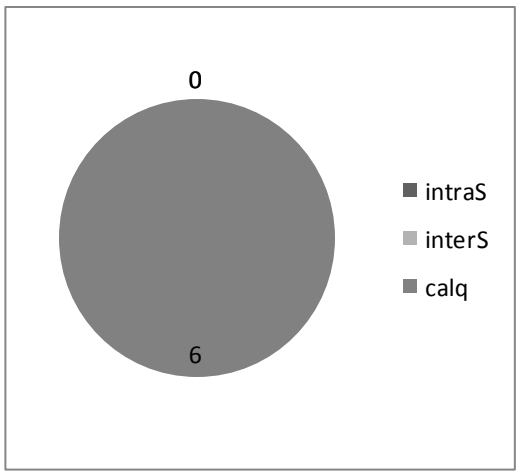
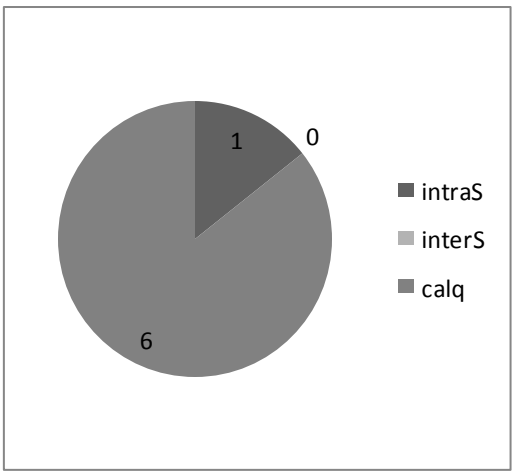
#### 4.3.4.A Ratios

Figure F presents the data from Table 13 in graphic form. If we examine the ratios of all three types of switching for the 6 subsets, we see that the distribution of switch types is similar for speakers who are both proficient and have acquired the language, regardless of whether the languages were acquired simultaneously or sequentially (cells 1 and 3). In both cases, the majority of switches are calques, and the ratio of inter- and intrasentential switches is balanced or nearly balanced. The pattern is nearly the same for non-proficient learners who acquired the languages simultaneously (cell 2); the amount of calques used was only slightly less. In fact, cells 1, 2 and 3 are similar in distribution of intra- and intersentential switch types; intrasentential and intersentential switching were employed with nearly equivalent ratios for both proficient and non-proficient simultaneous speakers (cells 1 and 2), and for sequential learners who were proficient (cell 3). This pattern did not remain consistent for non-proficient sequential learners (cell 4), in which case a greater number of intrasentential switches were used than intersentential. This group also used a much higher ratio of calques that any of the other groups with BICS competence. Cell 4 was unique in terms of the distribution ratio of code switching types. The distinct pattern for cell 4 will be discussed further in section 5.3.

The distribution of switch types for cells 5 and 6 was conspicuously different. This subgroup of speakers had not achieved BICS competence, and the pattern of code switching use indicated that calques were almost exclusively the only kind of code switch used at this stage of acquisition. Although cells 5 and 6 were quite distinct from the rest of the speaker subgroup cells, they were quite similar to one another. Based on similarity of distribution ratios, it appears that cells 1 and 3 could potentially be considered together. The same might be said about cells 5 and 6.

The pie charts in Figure F provide a clear picture of the relative use of the three major subtypes of switching for the 6 speaker subgroups. Numerals within the pie charts represent number of switches observed in each subgroup cell. Numerals in the upper right hand corner (n = x) represent the number of participants within that particular cell of the matrix. Comparison of the total number of switches to the number of participants in each cell provides a perspective on the frequency of code switching; that is, although the emphasis in Figure F is to illustrate distribution of use for the different subtypes, the reader can also observe differences in the amount of switching produced per speaker within the cells of the matrix.

**Figure F. Acquisition/Proficiency Matrix: Distribution of CS Use for Subgroups of Bilingual Speakers**

| | Proficient | Non Proficient |
|---|---|---|
| **Simultaneous [ + BICS]** | n = 13   | n = 3   |
| **Sequential: Acquired [ + BICS]** | n = 10   | n = 5   |
| **Sequential: non acquired [ - BICS]** | n = 2   | n = 6   |

# 4.4 Discussion of Typology Results

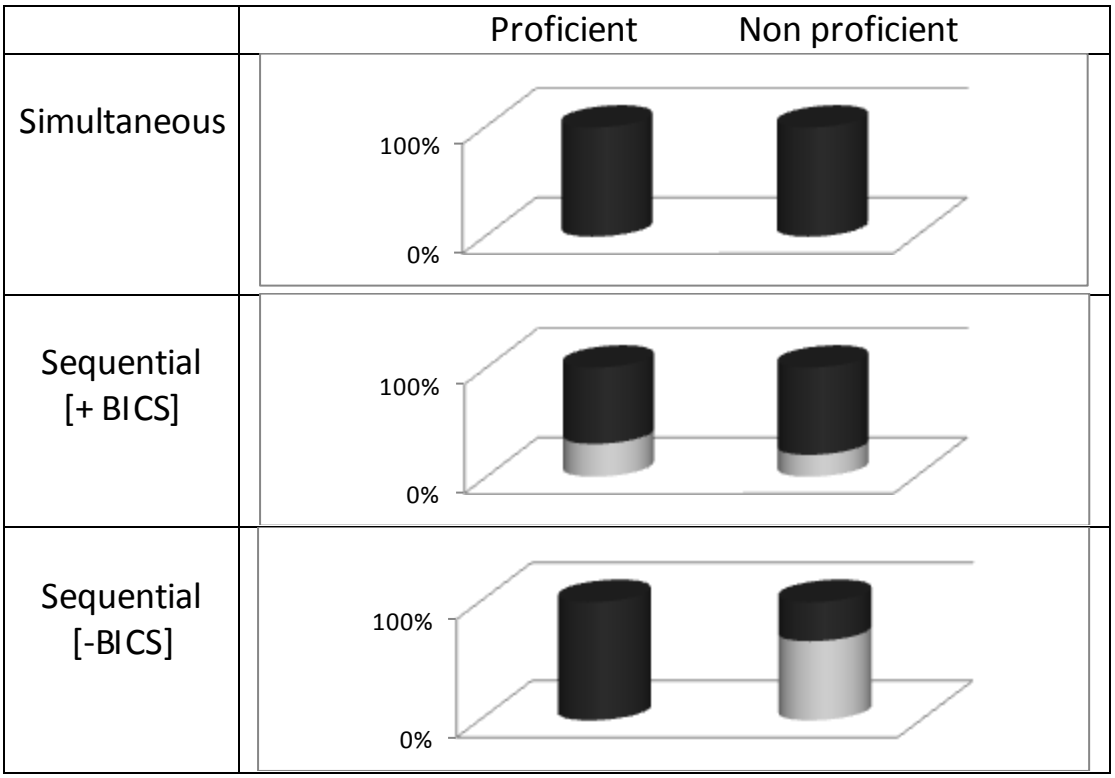
### 4.4.1 Profiles for Speakers who did not Switch

Although the obvious question in a typology study regards what types are employed by speakers, (in other words, "of those who switched, who did what?"), another variable which must be investigated regards those participants who did not switch under any conditions. Before discussing the types of switches employed by those who switched, the profiles of those speakers who did not switch will be addressed. The diverse sociological influences which affect the speaker's propensity to switch were presented in Section 1; there are numerous possible underlying reasons for a participant's switching/non-switching performance. However, it appears to be possible to examine profiles of those who did not switch and discover a pattern of linguistic behavior based on proficiency and/or acquisition history.

#### 4.4.1.A Calques

An overview of the incidence of calquing for all participants reveals that the majority used calques. There were only 9 of 39 participants (23%) who did not use any calques. Comparison of proficiency levels for these participants showed almost equal propensity to not use calques; 4 proficient speakers did not use calques, compared to 5 non-proficient speakers. It does not appear that proficiency is an influencing factor for those speakers who did not use calques, however the results indicate that acquisition profile may be. Of the nine speakers who used no calques, none were simultaneous learners. Conversely stated, *all* of the simultaneous speakers were observed to use calques. It could be postulated that something intrinsic to the simultaneous learning experience allowed for greater ease of switching between languages, manifested in the form of calques. Figure G illustrates the percentages of speakers in each cell of the acquisition/proficiency matrix who did not switch using calques. Similar to Figure E, but with additional information regarding proficiency, speakers who switched are represented in black, and speakers who did not switch are represented in white. This figure presents an overview which reveals that those speakers in cell #6, who are not proficient and have not acquired BICS competency, are the ones most likely to avoid use of calques (or to avoid any kind of switching at all, as we will see in the next section). Most speakers in all other subgroup cells use calques, whether they are proficient or not.

**Figure G. Percentage of Speakers* who did not Use Calques**




* White = speakers who used no calques; Black = speakers who used calques

One must, however, exercise caution before making conclusions regarding decreased use of calques for sequential speakers. Although these 9 participants represent 39% of the sequential participants, there were three sets of siblings in this group who did not calque, accounting for 6 of the 9 participants. (Conversely, the remaining 14 sequential speakers represent 11 families.) It could be that within the culture of these three families, mixing of languages was either not valued or was discouraged. In this view, sociolinguistic variables may have ruled out calque use for these individuals. In other words, the low incidence of calques for this group may not be related to acquisition type. Exclusion of members of these three families would yield a small percentage of speakers who did not use calques; only 2/30 remaining participants did not use calques (7%). Whether non-use of calques is related to type of acquisition or to sociological issues is not clear. In either case the percentages are low. Therefore, the suggestion that decreased calquing among the sequential group is related to the speaker variable of acquisition type must be considered tentatively. It is possible that micro-sociolinguistic variables such as family attitudes toward language mixing are the strongest influence on calque performance. At the same time, it is of note that the only speakers who utilized no calques at all were sequential learners. It must be considered that for sequential learners, there is a greater likelihood of susceptibility to attitudes which would discourage this type of switching, and it is possible that this comes from something inherent to the

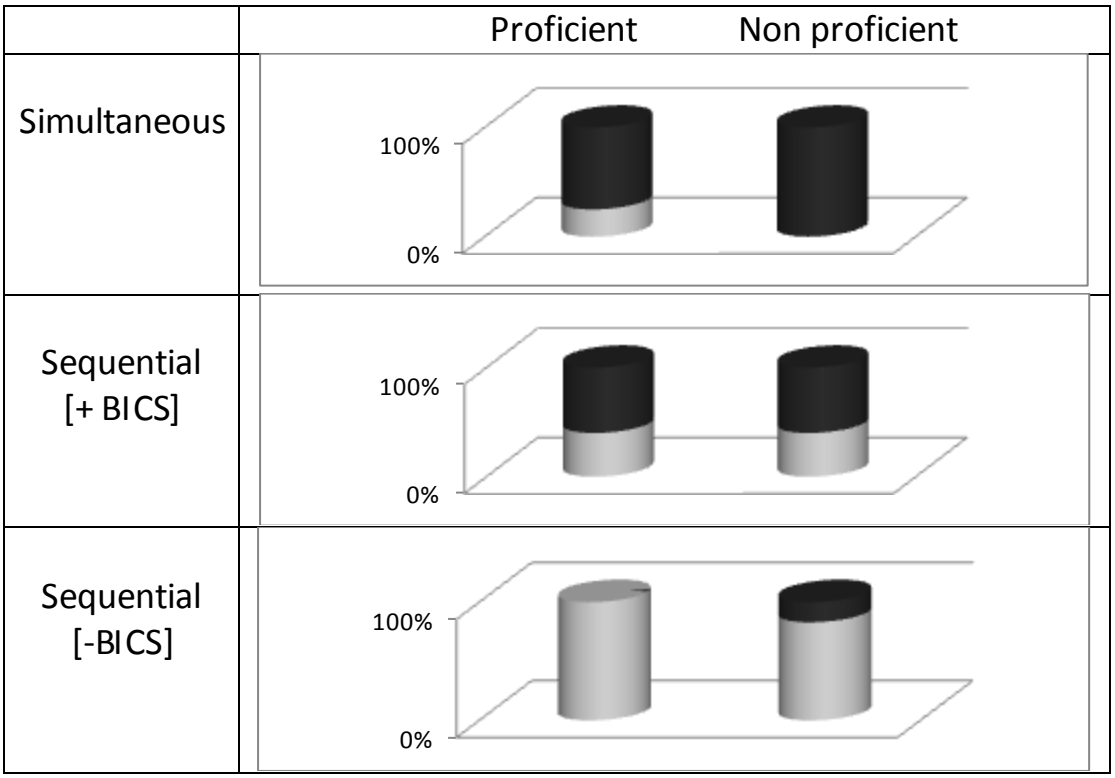
sequential learning experience. Whether such attitudes originate within the family must be considered conjectural at this point.

#### 4.4.1.B Intra- and Intersentential Switching

Of the 39 participants in the study, 16 did not employ intra- or intersentential switching under any circumstances. Of those who did not switch, only 3 were simultaneous learners, and 13 were sequential learners. A closer look at the participants reveals that 3/16 (19%) of the simultaneous speakers did not switch. There were 13 out of 23 (57%) sequential learners who did not switch, but this may be somewhat misleading. Within the group of 23 sequential learners, 15 had acquired BICS competence in the second/third language, whereas 8 had not fully acquired BICS for the target language. (See discussion of BICS competence in Section I.) Considering that there are two subgroups of sequential learners, acquired and not acquired, we can gain additional insight into the acquisition patterns for weaker speakers. (Weaker speakers would be those who had either not acquired, or those who had acquired but were considered to be non-proficient; cells 5 and 6, and cell 4, respectively.) 6 of the 15 sequential speakers who had acquired (40%) did not use intra- or intersentential code switching, compared to 7 of the 8 (88%) of those who had not fully acquired the sequential language. Based on examination of those speakers who did not switch, it appears that: a) simultaneous learners are more likely to switch, b) sequential learners who had acquired (here called 'sequential, [+BICS]') were slightly more likely to switch than not, and c) sequential learners who had not yet acquired L2 (or L3) (here called 'sequential, [-BICS]') appeared far more resistant to switching.

When proficiency was considered, there did not appear to be considerable differences in the propensity to switch. Overall, 9 of 25, (36%) of proficient speakers did not switch, compared to 7 of 14 (50%) of non-proficient speakers. The non-proficient number is perhaps confounded by the high non-switching rates for those speakers who had not yet fully acquired the sequential language. If only [+BICS] speakers are considered, there is not a large difference in the percentages of proficient (cells 1 and 3, 30%) versus non-proficient (cells 2 and 4, 25%) speakers who did not switch. Within the sequential, [-BICS] group, (cells 5 and 6) there was no appreciable difference in the propensity to switch for proficient compared to non-proficient speakers. There was only 1 token of intra- or intersentential switching for the 8 participants in this group. The breakdown of which speakers did not use intra- or intersentential switching is represented in Figure H, again with percentage of speakers in that subgroup cell represented in white. Percentages of speakers who switched are represented in black.

**Figure H. Percentage of Speakers* who did not Use Intra- or Intersentential CS**




***White = no intra- or intersentential CS used; Black = speakers used intra- and intersentential CS**

Because the number of speakers in cell 2 (simultaneous, proficient) and cell 5 (sequential, proficient, -BICS) is small, their impact in this chart is somewhat overrepresented. What is most of note is that, in comparison to the overall percentage (41%) of speakers that did not use intra- or intersentential switching, speakers in cell 6 (sequential, non-proficient, -BICS) refrained from this type of switching at a much higher rate, 83%.

### 4.4.2 Profiles for Speakers who *did* Switch Code

As was presented in Figure F, the analysis/description of the use of code switching subtypes has provided a profile or pattern of type use for subgroups of multilingual speakers. It seems clear from the data, in answer to the second experimental question regarding whether there exist patterns of code switch type use that correspond to subgroups of multilinguals, that there are indeed different patterns dependent on acquisition type and proficiency. It may be helpful for the reader to refer again to Figure F.

#### 4.4.2.A Calques

For all subsets of speakers, the type of code switch found with the greatest frequency of use was calques. This is the medium gray area in the pie charts in Figure F. Although there was some

variability of calquing frequency among speaker subsets, none of the variability was great enough to be statistically significant. In every analysis of elicitation and typology, calques were always the most frequently occurring subtype of code switching observed. Because calques did appear in all subgroups of participants across the board, it implies that use of calques is a widely used form of code switch for this group of children. Thus, calque use may not be the best variable available to distinguish one subgroup of participants from another. We can therefore reject the idea that calquing is *solely* a) evidence of attrition or b) the interlanguage of acquisition. Although calquing does occur in these scenarios, the presence of calquing alone cannot be used to identify a subset of speakers based on acquisition type or proficiency. If this were true, calques would have been elicited in much greater numbers for those with sequential acquisition or low bilingual proficiency. Since this was not the case, it must be considered that there are other factors which affect the production of calques in bilingual/multilingual discourse. These other factors will be discussed in a following section. However, it was noted that some use of calques, in the absence of intra- and intersentential code switching, would be consistent with the pattern described for sequential learners who are still in the acquisition process [-BICS] (cells 5 and 6). This will be revisited in a following section.

#### 4.4.2.B Intrasentential Switching

Intrasentential switches are represented by the dark gray regions in the Figure F pie charts. These regions encompass four subtypes of intrasentential switching: single word switches, switches occurring in mazes, phrase switches, and hybrids.

***Single Words*** - There was no significant difference in the amount of single word switching when comparing proficient to non proficient bilingual children. As such, the suggestion that single word switching could occur as a result of a strategy to fill lexical gaps for the less proficient must be rejected for this group of children. Simultaneous bilingual children were shown to use a significantly higher percentage of single word switches than sequential bilinguals. For many studies, single word switches were the most commonly occurring switch type (Nortier, 1990:212), or most common intrasentential switch type (Berk-Seligson, 1986: 325-6, Poplack, 1980:602-3). In this data set, single word switches were also the most commonly occurring intrasentential type. There exist no known studies which compare the intrasentential switching patterns of sequential and simultaneous child learners. The 15 subjects in the Nortier study were young Dutch/Moroccan Arabic bilingual adults who were all sequential learners. Berk-Seligson studied 87 Spanish/Hebrew bilinguals, all but 5 of whom were adults. She subdivided her informants on the basis of bilingual proficiency but did not compare types of acquisition. The 20 Spanish/English bilinguals in the

Poplack study were also adults. Poplack identified approximately 8 of these speakers as 'true bilinguals', who learned both English and Spanish in early childhood (defined as both languages having been introduced by the ages of 2-7). While this does not correspond directly with the criteria for simultaneous learners identified in the current study (both languages by 18 months of age), this is the group which has the greatest likelihood of including some who could arguably be considered as simultaneous learners. (Many researchers accept a more conventional definition of simultaneous than this study, allowing for onset of the second language anytime from birth to 3 years (Goodz, 1994:61). Poplack (1980:609) reports that the 'true bilingual' group had the highest percentage of intrasentential use compared to other code switching types (59%). By analogy, if this group had higher use of intrasentential forms, and within the intrasentential category the highest percentage was single word switches, one could infer that these 'true' bilinguals used a higher percentage of single word switches. The comparison here is admittedly indirect, but provides the closest approximation of supporting the current study's findings with other research.

It is not clear why simultaneous learners used more single word switches than sequential learners. It could be hypothesized that simultaneous learners had a different type of lexical access than sequential learners. A simultaneous learner has been exposed to both languages for a longer period of time, since the sequential learner has less time of exposure with the L2. In this sense the simultaneous bilingual child may have stronger connections between a given concept and each of two corresponding words, one for each language. The sequential learner on the other hand, can be seen to have a strong connection between concept and word for L1, but a weaker, less established connection for L2. If one assumes that a connection between concept and word is based upon the context in which the association was made, there could be slight differences in meaning for a 'synonymous' word in L1 and L2. This is more likely for simultaneous learners, since they are receiving input in both languages while making connections between concept and word. Sequential learners are likely to have established a 'slot' for a concept and may simply place the L2 word for the same concept into the existing 'slot'. With this view, simultaneous bilingual children could have a greater inventory of choices for a given concept, assuming that they have more firmly established connections to each language-based contextual variation of the concept in question. Thus, there could be a depth of semantic content more available to a simultaneous speaker that provides greater access to subtle nuances or distinctions in meaning. This could result in more 'precise' word choices, evidenced on the surface as single word switches. Such an explanation seems to be supported by the understanding of lexical access presented by Paradis (1981, 1986) and discussed by Grosjean (2008:197), in which the bilingual is considered to have one storage system for both languages but two separate networks of connection to the stored language, one for each language.

These pathways would also be associated with the context in which they were experienced, including the language in which the experience took place, as well as other variables like emotional state, level of interest in the topic, and so on. Grosjean has touched on the idea that lexical access is variable, depending on the context in which the word is used. He framed this in terms of 'the most available word phenomenon' (1982:151). Bilingual speakers may know a word in both Language X and Language Y, but at a given moment in speaking Language X, the word in Language Y is more available. Later on in a discourse the bilingual may use the equivalent word in Language X, so this is not a matter of knowing the word in both languages, but it is an indication that access to the word may vary.

***Mazed Switches*** **-** Although the use of switches within mazes was not significantly different when comparing types of acquisition or bilingual proficiency, mazes were elicited under both the experimental conditions. Since both experimental conditions were intended to activate the bilingual end of the language mode continuum (Grosjean, 1997a), the production of mazes provides supporting evidence that the bilingual mode was indeed activated, even when the remainder of the utterances containing mazes were produced monolingually. Very few studies have focused on the use of mazes for bilinguals. One study was completed by Fiestas, Bedore, Peña, and Nagy (2005) in which they examined the mazes used by Spanish/English bilingual children contrasted with children who had received exposure to both languages but were functionally monolingual in either English or Spanish. They found that the bilingual children used more mazes than their monolingual peers (especially a subtype they called repetitions), but that the rates of maze use were considerably lower than the rates of monolingual children with language disorder or delay. These findings seem to indicate that use of mazes in general are not associated with low proficiency.

Fiestas, Bedore, Peña and Nagy (2005) identified several subtypes of mazes, including fillers, repetitions, conjunctions and various types of revisions: phonological, lexical, and grammatical. The participants in their study were all sequential learners, and they found that within the group of bilinguals, there was a greater use of grammatical revision while speaking their L1 Spanish than their L2 English. They suggest that these sequential bilingual speakers may have had a "greater metalinguistic awareness of the grammatical rules of Spanish…and therefore increased ability to monitor Spanish grammaticality" (2005:739). They did not report whether the mazes contained any code switches. Within the class of mazed switches for the current investigation, 46% (6/13) were single word fillers that appeared to be unintentional utterances produced during processing and word planning. 54% (7/13) were phrases (and one instance of a single noun), which were self interruptions followed by a rephrasing in the opposite language. It is clear that these 'rephrasing'

types have something in common with the repetition types of Fiestas et al, as well as with their revision types. They were indeed repetition of content, but a revision in the sense that the form was changed from coding in one language to code in the other language. The overlap in subtype categories makes comparison difficult, but the data do suggest that the presence of this type of maze reveals a heightened level of awareness and self monitoring.

The filler type mazes in the current study were all accompanied by hesitation particles such as pauses, 'mmm', 'uh', or Swiss German '*also*'. This seems to indicate that the rephrasing was intentional at some level. Poplack (1980:601) associated smooth transition between L1 and L2 elements as 'unawareness' of code switching. She reported low percentages of repetition (in this study: rephrasing) type switches and concluded that skilled code switching did not contain this kind of element in large numbers. While the data in this study also do not include rephrasing-type fillers in large numbers, closer examination of the contexts in which the two types of mazes were used reveals that the use of rephrasing-type mazes in this study appeared to be influenced by the mode in which the data were elicited. Filler-type mazes were produced in all three of the elicitation contexts. The rephrasing-type mazes were almost all produced in the code switched mode (5/6). In addition, this same 54% of mazes (the mazes that were phrases) occurred in the question format of the code switched mode. With the assumption that rephrasing is an indication of the speaker's attention to his or her own speech, it can be hypothesized that the speakers were sensitive to the mode of discourse along the bilingual continuum that had been activated. In this case, it appears that activation of the code switched mode (rather than proficiency or skill in code switching) may have elicited a greater number of rephrasing-type mazed switches. Though the number of tokens for rephrasing-type mazed switching is too small to perform statistical analysis, it does appear that use of this subtype of switch in children is sensitive to variables related to the contextual setting and not necessarily to within speaker variables such as acquisition history or bilingual proficiency, as Poplack has suggested.

***Phrase switches*** - It was hypothesized that there might be differences in the types of phrase switches used, and that perhaps the more proficient speakers would use a greater number of whole clause switches of the type described by Bentahila and Davies (1995) and/or alternation of phrases described in Huang and Milroy (1994) in their studies of adult bilinguals. (See Section 2 for a discussion of these phrase switch types.) In fact, the children in this data set provided only 4 examples of phrase switches, which represented 1.5% of all switches observed, or 8.9% of the intrasentential switches. Two of the 4 phrase switches would be considered to be whole clause/alternational; the other 2 would be considered to be noun phrase switches/insertional.

Because the amount of phrase switches elicited is so low, the numbers are not sufficient to make a meaningful conclusion. However, the scant data provided in the current corpus appear to be in accordance with Bentahila and Davies' finding in a follow up study of their work with adults, in which two children showed no preference for either type of switching within or between phrases. Bentahila and Davies' two subjects were 4 year old simultaneous bilinguals and were reported to use high frequencies of both types of clause switches (alternational or insertional; 61.3% of all switches, 1995:88). The 39 children in this study were older, had varied proficiency and acquisition profiles, and produced very few phrase switches at all. Some other studies have also reported very low incidence of phrase switches (sometimes referred to as clause switches): Berk-Seligson (1986:326) reported an incidence of .8% and Redlinger and Park reported that "phrasal mixtures constituted only a small number of the total mixed utterances" (1980:350). Probably the most relevant factor to account for the difference in amount of phrase switches observed in this corpus compared to Bentahila and Davies is that the participants in the Bentahila and Davies study came from a bilingual community in which the sociolinguistic norms allowed for more frequent switching. So, though the quantities of phrasal switches are quite different when one compares Bentahila and Davies' results to this corpus, the types used are similarly balanced. It is also of interest that all 4 of the phrase switches in this corpus came from the same family - a set of three brothers. It must be considered that this family may have given a particular value to, or perhaps provided greater modeling of phrase switching. In this case the brothers could have been matching their code switching style to that of their environment – also a conclusion made by Bentahila and Davies (1995:91). Thus, it can be anecdotally noted that both studies show balanced use of the two types of phrase switches for children, and that use of phrases appeared to be associated with sociolinguistic factors rather than proficiency.

***Hybrid Switches*** **-** Non-proficient speakers were noted to have a significantly higher incidence of hybrid code switches. These types of switches are rarely discussed in adult studies, and in fact are 'ruled-out' by the free Morpheme Constraint (Poplack, 1978a, 1980) and the similar PF Disjunction Theorem (MacSwan, 2000). However, intra-word switches are mentioned by Bentahila and Davies (1995:81), in one of the few studies in which hybrids were noted in adults (see also Morimoto, 1999). Bentahila and Davies reported a higher number of word-internal switching in verbs for their unbalanced bilingual adults, who were French/Arabic speakers in Morocco that were Arabic-dominant. (9.3% for unbalanced speakers, compared to 2.2% of all switches for balanced speakers, see Section I.) As the unbalanced speakers in the Bentahila and Davies study would correspond to those labeled non proficient in this study, results in the current study can be seen to corroborate Bentahila and Davies' findings. More often, hybrids have appeared in the data of

bilingual children, (Volterra and Taeschner, 1978:318, Lindholm and Padilla, 1978:334, Vihman, 1998:66), although the concept of hybrids may not have been the focus of their research. More recent studies have begun to look at hybrids more closely (Radford, Kupisch, Koppe and Azzaro, 2007, Müller and Cantone, 2009). Hybrids may be considered by some to be a type of borrowing – nonce borrowings, in which a word is borrowed (not on a regular basis, but for the moment), and adapted morphologically and/or syntactically to the receiving language (Sankoff and Poplack, 1985:12, Nortier, 1990:186). Such a nonce borrowing could end up looking like a stem in one language with a morphological affix contributed by the receiving language. This analysis could apply to those hybrids of the form: stem + affix, but it would be harder to explain intramorphemic hybrids, for example. Regardless of whether hybrids are classified as 'true' code switches, considered to be a type of single word switch or a type of nonce borrowing, the fact is undeniable that they exist, and that they occur in statistically higher incidence with speakers who are considered bilingually non-proficient. It is perhaps less important to define to which category of language contact phenomena hybrids belong, and more important to understand the association of this form with the less proficient bilingual.

The question arises as to whether hybrids may be a normal part of the bilingual acquisition process. This suggestion would be supported by the fact that hybrids are rarely seen in adult data, and that incidence of hybrids appears to decrease dramatically by the time the bilingual child is proficient. In fact, the proficient children in this study were unlikely to use hybrids. Upon further investigation, one notes that hybrids were used primarily by those children who had acquired the language, in terms of experience with the language, but were not considered to have acquired it all that well; they were not proficient (cells 2 and 4). In this sense, the lingering presence of hybrid use by individuals who are [+BICS] and yet are still non proficient may be an indicator of atypical bilingual development. Therefore, use of hybrid switches could be a red flag which would indicate that further analysis of the speaker is indicated to detect and/or differentiate between possible language impairment, attrition, incomplete acquisition or other nonspecific contributing factors. In short, presence of hybrids in school age simultaneous learners, and in sequential learners after a sufficient amount of exposure to the L2, can be considered atypical and warrants a closer look.

Not all examiners have considered hybrids to be examples of inferior linguistic ability. In Schmitt's (2000) study of sequential Russian L1/English L2 children who were undergoing attrition of L1, she identified what she called bare forms. Coming from the perspective of Myers-Scotton's Matrix Language Frame (MLF) model (1992, 1993a, Myers-Scotton and Jake, 1995, 2000), she predicted that forms from the embedded language (EL) should receive grammatical forms (in this

case called late system morphemes) from the matrix language (ML). In the case of single English morphemes (primarily nouns) embedded into a Russian frame, she expected to see Russian inflections for case, gender, etc. affixed to the content morphemes. (These forms correspond to what have been called stem-affix hybrids in this study.) Though she did report incidence of 10 tokens (3% of the intrasentential switching in the sample) of English content morphemes which had this expected morphosyntactic integration from the ML, she detected a much higher incidence of bare forms, 66 instances, or 23.6% (2000:16-17). Her analysis, in the context of the MLF model, led her to conclude that bare forms were evidence of a transitional stage in language loss (2000:26). By analogy, presence of hybrids rather than bare forms could be considered to represent a higher level of linguistic competence in both languages. Hoffmann and Stavans (2007) reported use of bi- and trilingual hybrid forms in a study of the code switching patterns of 2 trilingual simultaneous children. They presented examples of both stem-affix hybrids (called morphosyntactic switches) and two intramorphemic hybrids (called lexico-phonetic switches) and referred to these forms as "reflecting the greatest degree of multilingual competence" (2007:70). In their opinion, such forms represented a "posterior stage in multilingual language development", and they submitted that it takes "a highly competent trilingual to understand such linguistic combinations fully when they are integrated in normal discourse" (2007:71). How can the concept, that appearance of hybrids reflects competent analysis and manipulation of deep levels of linguistic information, be reconciled with the present finding that hybrids occurred primarily with non-proficient speakers? It might be possible to consider the specific types of hybrids used, and to examine them from the perspective of error analysis, in order to better understand the linguistic strategies the children are using.

Within the class of hybrids, there appear to be some types which are common, based upon their presence in the literature (Radford et al., 2007; Müller and Cantone, 2009). Specifically, these are switches occurring between a stem and an affix. In fact, this type of hybrid switch was the most common in the present data sample, accounting for 56% of the hybrids observed. Other hybrids such as intramorphemic switches appear to be quite rare, though they are reported occasionally (Nortier, 1990:144, Poulisse and Bongaerts, 1994:41-42, Hoffmann and Stavans, 2007:70). These nonstandard switches may be considered to be 'misfires' or mistakes. Poulisse and Bongaerts (1994) described a category of code switches they called 'unintentional language switches'. They examined the use of L1 (Dutch) words in the discourse of teenaged and young adult speakers of L2 (English). Although most of the 'slips of the tongue' described by Poulisse and Bongaerts involved use of single word switches of either content words (nouns, verbs, numerals, adjectives, and most adverbs) or function words (prepositions, conjunctions, determiners, pronouns), there were a few instances of blended words such as '*kwame*' (Dutch *kwam* + English 'came') and *elchother* (Dutch *elkaar* + English

'each other') (1994:41-42). Poulisse and Bongaerts (1994:46) reported that there was an increasingly higher incidence of unintentional language switches as the proficiency of the speakers decreased. This suggests a possible relationship between low bilingual proficiency and incidence of intramorphemic switches. One of the two intramorphemic switches reported in Hoffmann and Stavans (2007:70) was attributed to the younger of the two trilingual subjects and occurred at the age of 3-4, just barely out of the BICS acquisition range. The other intramorphemic example was actually a trilingual morpheme, including particles of the English, Spanish, and Hebrew morpheme for 'garden' (2007:70). Unfortunately, the age of the child at the time of this utterance is not given, but if it is also attributable to a young age, it could suggest that intramorphemic switches may occur at an earlier stage of bilingual development than other types of hybrids. As is the case with the studies cited so far, intramorphemic switches in this sample were also rare, representing only 11% of the hybrids observed. In this study they were produced exclusively by speakers who were not proficient. There were an additional 4 examples of intramorphemic switches which were excluded from the statistical analysis of the data set. The first was produced by a speaker who was fluent in Dutch in addition to English, German and Swiss German, and involved a Dutch-English blend of partial morphemes which was considered perhaps "too conjectural" to be included[9]. The other three instances were contributed by the subject who was mentioned in Section 3, whose data deviated significantly from the rest of the corpus and whose results were set aside for later review. He had a history of language delay, was still acquiring Swiss German, and had been immersed in 5 languages[10] by age 6. He had a high incidence of hybrid forms, 6 in all, including the 3 intramorphemic uses. In addition to being classified as non-proficient, 2/3 of the speakers who used intramorphemic switches were at the end of the BICS acquisition stage and therefore considered to be still acquiring the new language. All of the speakers who used intramorphemic switches had acquired other languages besides the three primary languages in this study. Although these results were not included in the statistical analysis for this study, they seem to substantiate the finding that atypical, non proficient speakers are more likely to use intramorphemic hybrids. It is also suggestive that intramorphemic hybrids may reflect an early stage of development of bilingual proficiency.

Acquisition of cognates in bilingual learners can serve to facilitate vocabulary growth (Beltrán, 2006:29-30, Ringbom, 1986, Moss, 1992). False cognates (also called deceptive cognates or

[9] The word in question is /ko: pt/; possibly English '**kicked**' + Dutch '*opstappen*' (to push off) = /**k***o: p***t**/. Both Dutch and English would use /t/ as the allomorph of the past tense construction. This hybrid word was produced in a mazed switch which was followed by the English 'kicked': "…and then (ko:pt) kicked the frog off."

[10] Danish, Lithuanian, English, German, Swiss German.

false friends) are those words which have a similar form in the two languages but do not carry the same meaning, and present problems for those learning a second language (Beltrán, 2006). Many false cognates exist for English and German (Freil and Kennison, 2001). An example noted with Standard German - English children follows: the Standard German form of the verb that means 'to receive', or 'to get' is: '*bekommen*'. It is often confused with the English word 'become', so that a child was observed to say in English, "I became a grapefruit" , (M. Hamolsky, personal communication, February, 2000). The monolingual speaker would be confused by this, but the bilingual speaker would understand the underlying semantic intent, (that is, that the child received a grapefruit). False cognate hybrid switches are included in the present study when they employ a false cognate stem, which is then combined with an affix from the other language. An example in which the semantic content of part of the word comes from one language but the phonological form is utilized from the other language, is found in the word 'wink + ed', from the narrative retell in which the child reported that "the frog winked goodbye to the other animals". English phonology is used, but the intended meaning 'waved' originates from the Swiss German '*wink*' (pronounced /viŋk/), to which the English past tense morpheme [ed] has been added, rather than the Swiss German form, (*hät gwinkt*). Although the resulting form appears to be fully one language (English), the context gives evidence that the semantic foundation of the word is from the other language (Swiss German). There is a similarity here to borrowing, in early studies defined as taking a word from one language and adapting it phonologically and morphologically into the receiving language (Poplack, 1980, 1981, Haugen, 1950). However, in the case of 'winked', the "borrowed" Swiss German root word, when adapted to English phonology, produces a word which is already in the English lexicon but has a different meaning. In this case it could perhaps be called a "false borrowing". A distinction to be made here is that, in the case of true borrowing, the monolingual speaker would recognize the word as a new word by virtue of its unfamiliar form, even though the phonology might completely conform to the monolingual standard. (For example, during the Middle English period in which English was influenced by French borrowings, an English speaker would have recognized the word 'chaise' - even if pronounced with English phonology: 'shays' - as a new word). Conversely, a monolingual English speaker who heard the Swiss child say "winked" with English phonology would not recognize this word as a new or borrowed word, and would interpret it to mean something different than what the speaker intended. In the case of 'winked' spoken by a bilingual child, only a bilingual speaker would be able to detect the 'false borrowing' and recognize that the semantic intent of the speaker was to signify a movement of the hand, not the eyelid. In this study, false cognate hybrid switches were also rare (27% of all hybrids), but the majority (67%) were produced by non-proficient speakers. Returning to the idea of nonce borrowing discussed

above, in the case of intramorphemic and false cognate switches, we could perhaps conceptualize them as 'nonce borrowings gone wrong'. In this sense they would represent errors. Poulisse and Bongaerts (1994:37) have referred to unintentional 'slips' such as these as performance errors, but the correlation between these hybrid 'errors' and non proficient speakers seems to imply that the errors are, in fact, errors related to language competence rather than performance.

#### 4.4.2.C Intersentential Switching

This type of switching is represented by the light gray color in the pie charts of Figure F. There was no statistical difference in the amount of intersentential switching used by the bilingual subgroups. This was an unexpected result, as several studies (Poplack, 1980:606, Nortier, 1990:115) have reported that less proficient bilinguals are likely to use more intersentential switching and less intrasentential switching. Poplack hypothesized that weaker speakers (she called them nonfluent) were more likely to use intersentential switching because it was less syntactically demanding than intrasentential switching, but gave the speakers a vehicle to participate in code switched discourse. Intersentential switching gave the weaker speakers the opportunity to satisfy the sociolinguistic motivators in conversation with their bilingual peer group even when they did not have the syntactic sophistication to be able to use the more complex intrasentential switch types. If Poplack's suggestion were the case for the children in the current sample, we would expect that cells 2 and 4 (non-proficient, acquired) would both have shown higher ratios of intersentential code switch use. Since this was not the case, it must be considered that Poplack's conclusions, which were based on data from 20 adults, may not apply to the linguistic behavior of children, who by their nature have not acquired full competency in their languages. The Nortier data were also based on adult speakers. However, Vihman (1998:62) reported that her two Estonian/English simultaneous bilinguals children used very little intersentential switching, only 9% of all switches. Based upon Vihman's description of her children's language environment and use, it appears that her children would be considered to be proficient bilinguals; they were receiving strong support of Estonian in the home, were simultaneously attending English speaking daycare or school, consistently spoke Estonian with their parents and used mixed language with each other. The use of high intrasentential/low intersentential switch percentages by the proficient children in Vihman's study lends support to Poplack's claim that non proficient bilinguals use more intersentential switching while proficient speakers use more intrasentential switching. The results in the current study, however, appear to agree with the conclusions of Berk-Seligson (1986:334-335), who strongly disputed the idea that intrasentential code switching was an indicator of high bilingual competence, stating that "type of code switching (…inter- versus intrasentential) is…unrelated to degree of

bilingualism". In this study, variables such as elicitation condition and question format were more closely associated with increased intersentential switching than acquisition type or proficiency (see section 3). Hoffmann and Stavans (2007) studied the interaction of two Spanish-Hebrew-English trilingual children learning simultaneously. They concluded that the children's intersentential code switching was more dependent on variables related to context rather than either psycholinguistic or formal linguistic variables. They further stated that with increasing maturity the child learns to recognize sociolinguistic factors and manipulate their own linguistic output, including intersentential code switching behavior (2007:66).

Hoffmann and Stavans (2007:66) refer to code switching as context sensitive and enumerate several sociolinguistic factors that influence code switching in adults and children. They indicate that "presence or absence of these may help *activate* [italics added] or suppress a code." Intersentential use in their study was more clearly related to elicitation condition than to speaker subgroup factors, and corroborated patterns evidenced in this study.

# *Section 5 – General Discussion*

## 5.1 Research Questions

### 5.1.1 Findings

The elicitation protocol in this study was successful in eliciting code switching in an efficient manner. A linguistic environment was created which proved to be conducive to code switching. Each of the two experimental conditions in the current protocol yielded different types of code switching: the bilingual protocol was most effective in eliciting calques, the code switched protocol was most efficient in eliciting intersentential code switches, and the bilingual and code switched conditions were statistically equivalent in generating intrasentential responses from the participants. Calques were elicited in greater number by the narrative format. There was no difference in amount of intra- and intersentential code switching elicited by narratives compared to the question format. However, the question format was significantly quicker; in light of the fact that the amount of switching elicited was essentially equivalent to the narrative format; one may conclude that the question format was more efficient in terms of time expended. Attainment of the first goal of the study was, in effect, a precondition without which the typology portion of the study would have been much more difficult to complete.

The distribution of types of code switches that were elicited was examined. A quantitative analysis of use for 6 code switching subtypes was conducted with speakers of different acquisition type and proficiency levels. The results provide a perspective on the types of code switching used by bilingual subgroups relative to each other. Significant findings were that single word switches were used more frequently by simultaneous learners, and that hybrid switches were used almost exclusively by non-proficient learners. It is also deemed significant that besides these two findings, code switch type use was largely the same regardless of type of acquisition or level of proficiency. Descriptive analysis provided the insight that switching behavior also appears to be related to whether or not acquisition of the L2 is complete. The patterns of incomplete acquisition include a lower disposition to switch at all, and a greater aversion to intra- and intersentential switching than to production of calques.

### 5.1.2 Theoretical Implications and Applications

In addition to the findings outlined above, it seems prudent to step back and view the findings in relation to each other, and in relation to conclusions other researchers have made in the area of bilingual language acquisition. What are the implications of results in light of current theory

in bilingual processing or development? What do the results contribute to our understanding of the bilingual language learner? How can the results and implications of this study be applied to real life teaching and/or clinical situations? In the three sections that follow I will address these important questions.

# 5.2 Code Switching and the Bilingual Language Facility

### 5.2.1 Activation of the Bilingual Language Mode

The results of Section 3, regarding the elicitation of code switching under varied language mode conditions, appear to validate the bilingual mode concept proposed by Grosjean (1985c, 1997a, 2001). The language mode continuum extends from monolingual mode on the one extreme to the bilingual mode on the other. The two elicitation conditions (bilingual, code switched) represent different points toward the bilingual end of the language mode continuum. The bilingual elicitation condition was presented with minimal intersentential prompts and no modeling of intrasentential switches or calques, and the code switched elicitation condition contained more frequent switches and modeling of 2 code switching types (intrasentential, intersentential). Both conditions elicited significantly higher amounts of intrasentential code switching compared to the baseline condition (monolingual mode[11]). This demonstrates rather convincingly that bilingual children increase switching when the bilingual end of the language mode continuum is activated. Bilingual proficiency and acquisition profile appear to have had less impact on the code switching performance of children than sociolinguistic variables such as elicitation condition or format of elicitation (narrative vs. answering questions). Thus, one may conclude that psycholinguistic variables may be 'trumped' by the response of the speakers to changes in the mode of discourse.

In the case of intrasentential code switching, the preceding discussion has established that some subtypes (single word switches, hybrids) occur more frequently as an effect of acquisition type or bilingual proficiency, but the frequency of these types are also increased in response to activation of the bilingual mode. Other intrasentential subtypes, mazes in particular, show evidence of being sensitive to language mode, but not to bilingual proficiency or acquisition profile. Both intrasentential switches and calques are considered to be more or less unintentional types of switches (Poulisse and Bongaerts, 1994). Both of these types of code switching occurred more frequently when children were in the bilingual elicitation condition. The increase of these switch

[11] The baseline condition was intended to create a condition toward the monolingual *end* of the language mode continuum. It is considered unlikely that the second language (Swiss German) was deactivated completely (Grosjean, 1985c, 1989, 1997, 2001, 2008).

types is therefore considered an unconscious response to the activation at the bilingual end of the language mode continuum.

Intersentential switching was more likely to occur when the participants were in the code switched elicitation condition, regardless of proficiency. Compared to monolingual mode, there were also more intersentential switches noted in the bilingual elicitation condition, but the amount was not high enough to reach statistical significance. It has been suggested by Hoffmann and Stavans (2007:66) that intersentential code switching is more influenced by sociolinguistic variables than intrasentential code switching. Others have suggested that children match their mode of discourse to that of their interlocutors (Comeau, Genesee and Lapaquette, 2003: 125, Bentahila and Davies, 1995:91). The code switched elicitation condition contained a greater number of switches (27) than the bilingual elicitation condition (7), and it seems apparent that the children were more aware of the switching of their interlocutor. It appears that the activation of the bilingual end of the language mode continuum induced the children to match the observed increase in mixing they heard with mixing in their own utterances.

It is not clear whether the bilingual elicitation condition and code switch condition represent two different modes. Both conditions elicited significant intrasentential switching. Within the bilingual mode, the question format elicited more intersentential switching, and the narrative format elicited more calques. Gutiérrez-Clellen et al. (2009:100) reported that children were more likely to code switch in conversation than in narrative tasks. The question-answer format in the elicitations included the same kind of turn taking that is intrinsic to conversation. Narrative discourse involves mostly monologue, and fewer junctures for interaction of the speakers or topic change. Topic change has been described as a locus for code switching by Reyes (2004:91). The question format provided more opportunities for topic change and thereby more opportunity to use intersentential switches than narrative discourse. It seems that it was the combination of bilingual mode with the question format which allowed for increased intersentential switching, and that the combination of bilingual mode with a narrative task gave rise to increased calquing. The bilingual elicitation condition and the code switched condition can then be viewed as variations within the bilingual mode, not necessarily separate modes. Both experimental conditions provided the activation necessary to stimulate code switching, albeit a different balance of types.

Calques present an interesting topic of focus. Calques were not modeled in any of the elicitation conditions, yet they increased dramatically once bilingual mode was activated. Since the activation of the bilingual mode was successful in eliciting calques for all speakers, without respect to proficiency, it must be considered that calquing is a normal part of multilingual discourse (or at

least the discourse of children acquiring multilingual competency). It may be true that adults judge calques to be somewhat less acceptable, but for children, this does not appear to be the case. Therefore, one must be cautioned not to view calques judgmentally, so as to infer inferior syntactic capability. It is not disputed here that calquing can be a sign of language attrition, this has been well documented (Bolonyai, 1998, Schmitt, 2000, Smith, 2006), but here it is advised that calquing must not always be interpreted as a sign of language loss. Rather than loss, it is suggested that calquing can be a sign of changing dominance. Perhaps the dominance of a less activated language (say, Language B) is increased when in bilingual mode. This dominance could increase to a level in which it becomes equal to, closer to, or more dominant than the language (Language A) that was used when in monolingual mode. In this view, dominance is a non-static variable, dependent on sociolinguistic conditions. Whether dominance can be situational or indicates a more permanent condition is a question yet to be answered convincingly, but the data seem to suggest that dominance of one language over another can be temporary. It may be helpful to use a term other than dominance, which can connote proficiency, intentional language choice or preference. Perhaps the temporary dominance brought about by situational activation of the bilingual mode could be referred to as 'prominence'. Using the new term, one can say that the activation of the bilingual mode in experimental conditions 2 and 3 allowed the second language to achieve a sufficient level of prominence such that it was reflected by an increased number of calques in the data.

Increased use of calques was not attributable to differences in proficiency. If one considers that the baseline condition was conducted in the monolingual mode, that is, with English (Language A) being activated and Swiss German (Language B) being largely deactivated, English can be considered to be the prominent (situationally dominant) language, even though the dominant language in the language environment was Swiss German. The fact that calque use was more frequent after the activation of Swiss German can be interpreted as an increase in the influence of Swiss German in that situation. The variability of code switching behavior under the three elicitation conditions lends evidence to the hypothesis that prominence of Language A or B can be situationally determined. Since calques were never modeled, it also seems reasonable to submit that they were an unconscious response to the stimulus of increased prominence of L2 in the elicitation.

### 5.2.2 Effect of Sociolinguistic Variables on Syntax

Sebba (1998) reported on instances of code switching wherein it appeared that the syntactic locations of allowable switches seemed to vary according to the norms of the particular sociolinguistic group involved. In his review of the literature on code switching (1998:3-4), he notes

that the concept of 'equivalence' or 'congruence' of grammatical categories across language pairs appears to be implicit in syntactic accounts of code switching (Weinreich, 1964, Woolford, 1983, Poplack, 1980, Joshi, 1985, Myers-Scotton, 1992, 1993, 1995). He cited examples of violations of constraints presented by several of these researchers, and identified strategies the bilingual speakers had used to maintain switching in spite of formalized constraints against switching (Sebba, 1998:5, 11, 12). Three of these strategies (harmonization, neutralization, and compromise) produce surface structures which would be classified as calques in this study. A few examples of these strategies from the literature in code switching are cited below, as are examples (9, 11-14) from the Swiss German/English speaking children in Section 3 of this study.

*Harmonization* - Two grammatical categories are treated as if they are equivalent for the two languages involved (Sebba, 1998:9):

(15) *Noch schlimmer, wenn de* client recalé *wurd am permis.*

[still worse, when the candidate failed is-past on test]

"Even worse, when the candidate had failed the test."

*Alsatian*/French, Gardner-Chloros (1991:152)

(16) " the glass of the lady"

[ *s Glas vo de Frau* ]

"the lady's glass"

*Swiss German*/English, this corpus, example (11) repeated

(17) *"*the lady her glass"

[ *de Frau ires Glas* ]

"the lady's glass"

*Swiss German*/English, this corpus, example (12) repeated

(18) *"tenían patas flacas, pechos* flat."

[they had legs skinny, chests flat]

"they had skinny legs, flat chests."

Spanish/English, Poplack (1980:600)

(19) "I got a lotta *blanquito* friends."

[I got a lotta white+small (whitey) friends]

"I got a lotta whitey friends."

Spanish/English, Poplack (1980:600)

Sebba (1998:6) discusses the use of the French 'recalé' (failed) in combination with the Alsatian '*wurd*', example (15). He comments that the speaker has considered the French category of past participle as equivalent to the Alsatian past participle. Although there are similarities between the languages in terms of formation of past tense, the verb systems are different, and require different order of the participle and the auxiliary verb, (French – est recalé, Alsatian – *participle + wurd*). The verb phrases of the two languages do not map onto each other in a word-to-word correspondence. In this case the speaker has determined that the categories are equivalent and therefore allowed to be interchanged, without regard to the rules of word order internal to the categories. Examples (18) and (19) are almost parallel, in that the entire category of adjectival noun phrase is considered to be equivalent for Spanish and English, allowing (18) to place the English adjective according to Spanish word order. The reverse is true in (19), with a Spanish adjective being placed in the position determined by English rules. In the case of English possessive noun phrases in (16) and (17), the Swiss German children have no genitive form available to use, since there is no genitive marker which would parallel the English [s]. They therefore have considered the entire English phrase as equivalent to either of the "possessive phrases" used by Swiss German speakers. In (16) the prepositional phrase is used to connote possession, with English words being 'plugged in' to the imported Swiss German phrase according to German word order: 'the glass of the lady'. Note that if the Swiss speakers were bilingual in Spanish, French, or a number of romance languages, the grammatical categories would be the same. Truly equivalent grammatical categories would produce parallel word order; i.e. 'el vaso de la mujer' or 'le verre de la femme'. In (17), the Swiss children have again analyzed the possessive phrase as equivalent to an alternative grammatical constituent used in Swiss German to denote possession. In this case the possessive adjective 'lady' is placed in apposition to the possessive pronoun + noun: 'the lady her glass'. In practice, it appears that switching a possessive construction from Swiss German into English is allowed, as long as it is perceived as equivalent to the English grammatical category.

*Neutralization* - A slot for a congruent category is created using a structure in one language that allows the non congruent category to be used in a less inflected form. Thus, the switched words are 'neutralized'. Sebba (1998:11) described it so: "…allowing single lexical items of, say, L1 to be inserted into constructions of L2 where otherwise, the incompatibility of L1 and L2 would prevent a switch." Many languages accomplish neutralization by providing a native 'helping' verb and combining it with a verb from the other language, thus forming a code switched compound verb. Consider:

(20a) onti *kare*
hunt do
"to hunt"
Sranan/Surinam Hindustani

(20b) train *kare*
train do
"to train"
English/Surinam Hindustani

Appel and Muysken (1987:126-127)

(21) "He's *after telling* a lie."
"He's told a lie." (after + present progressive verb = past tense)
*Irish*-English, from Odlin (1989:14)

(22) "…and he *did look* at the frog."
"...and he looked at the frog."
(*Swiss German*)/English, this corpus, example (9) repeated

The compound verb structure seen in (20a) and (20b) is seen in many language pairs (Sebba, 1998:12, footnote). The same combination of 'do' or 'make' + neutral element has been noted[12] in calques produced by Swiss German speakers: "I need to make it finished", a word for word translation of "fertig machen", (fertig = finished; machen = to do, or to make). The Irish example in (21) is repeated from Section I, and shows another use of a minimally inflected verb, present progressive, this instance in combination with an adverb. Although (22) is grammatical in English,

[12] Though not part of the corpus of elicited data, this construction was observed in the bilingual classroom on numerous occasions.

the use of the auxiliary 'do' is reserved for the emphatic aspect of the verb (or for negative and interrogative constructions). It is clear from the context that the child was *not* meaning to emphasize the affirmative aspect of the frog having looked. The expected form would be an inflected preterit, 'looked'. Swiss German does not have a preterit tense, and would use present perfect construction, in which an auxiliary verb receives inflection. Therefore, the use of do + verb allows the child to avoid use of an incompatible structure, preterit tense. This strategy allows the child to maintain uninflected forms in English and reduces syntactic 'load' so that only the inflected forms of 'do' must be learned in past (preterit) tense. I argue that even though (21) and (22) do not show surface switching, the syntactic process occurring is analogous that of (20a) and (20b).

*Compromise* - An utterance is produced which allows switching to occur in spite of the fact that it may violate the grammar of one [or both] of the languages from a monolingual viewpoint (Sebba, 1998:12). Often the compromise results in a form simply being deleted. Berk-Seligson (1986:328-334) provided an account of what she called code switching errors. In her data, the most common forms of code switching errors were omission of articles, followed by omission of the copula. These 'error' calques display the compromise strategies described by Sebba:

(22) *Ze* Ø kómo la vedrá.

[That like the truth ]

"That (is) like the truth."

Ladino Spanish/Hebrew, Berk-Seligson (1986:330)

(23) Éya kére Ø *mispár* del telefóno do tu ížo.

[She wants (the) number of the telephone of your son]

"She wants your son's telephone number."

Ladino Spanish/Hebrew, Berk-Seligson (1986:328)

(24) because he wanted *that* the deer *lets* Tom down. Ø

[*wil är hät welle dass de Hirsch de Tom abe laat*]

"because he wanted the deer to let Tom down."

Swiss German/English, this corpus, example (13) repeated

(25) He wanted *that* the deer Ø *would* stop.

[*Är hät welle dass dr Hirsch aahalte würd*]

"…He wanted the deer to stop."

Swiss German/English, this corpus, example (14) repeated

In each of the examples above, the symbol Ø is used to indicate a constituent that is missing, according to the grammatical constituency rules in one or both of the languages. In (22), the omission is accounted for by the absence of a verb-like copula in Hebrew present tense phrases. Since the forms are not equivalent, the speaker simply omitted the non equivalent form. Omissions in the remaining examples are also a result of the deletion of non equivalent forms, but whereas the sentence in (22) is grammatical by Hebrew standards, each of the remaining examples is a violation of the syntax of both languages. In (23) the definite article is omitted, violating the rules of Spanish. The definite marker '*ha*' would be required by the noun phrase structure rules of Hebrew, so the structure of Hebrew is violated also. In example (24), the speaker has introduced the subordinate clause using a translation of '*dass*', meaning 'that'. This '*dass*' construction would require inflection of the subordinate verb in the present tense, with the verb being moved to the final position of the sentence. But the speaker has placed the inflected verb in the position it would have occurred in the equivalent English subordinate clause, violating the rules of Swiss German. At the same time, the verb placement in the subordinate clause, though in the correct position, violates the rules of English since it is not used in the infinitive form. Example (25) illustrates a different approach to the non equivalence of subordinate phrase structure in Swiss German and English. The child produces a structure which uses the same '*dass*' construction, but incorporates a subjunctive modal 'would'. The word order violates Swiss German, but appears on the surface to comply with English. However, the child has classified the verb 'want' into the same lexico-syntactic category as verbs that would allow this word order, i.e. "He thought that the deer would stop", or "He hoped that the deer would stop." The verb 'want' is part of a lexical category of verbs which require the infinitive form for subordinate constructions. ("He commanded the deer to stop.") In these last three examples, each utterance has a constituent missing from the perspective of at least one of the languages, and each example violates syntactic rules of both languages. However, the communicative intent of each sentence has been maintained. The compromise strategy allows for switching of codes, while accommodating non equivalent structures in the same utterance.

It was observed in Section 3 that calques often occurred in situations where the English and Swiss German syntactic forms did not map onto each other in a compatible way. In other words, in situations which would constrain switching based on non-equivalency of the syntax (i.e., where Poplack's Equivalency Constraint is violated), the response of the children was to produce a calque, wherein the syntactic order was provided by one of the languages and the surface morphemes were provided by the other. Poplack refers to the above cited examples (18) and (19) as 'switches which violated the equivalence constraint' (1980:600). Berk-Seligson also comments on the violation of the equivalence constraint in her data: "…speakers preferred to violate the equivalence constraint in favor of Spanish when it came to a grammatical constituent which existed in one language but not the other, thereby doing away with the constituent entirely. However their tendency to break both Spanish and English rules at one and the same time in their omission of the definite article is difficult to explain"(1986:330).

**5.2.3 The Non-equivalency Corollary**

In each case of calquing above the speakers were able to maintain discourse in the bilingual mode, even when the syntactic structures of the two languages would preclude intrasentential switching. Sebba (1998:18) concluded that equivalency (or congruence as he referred to it) was dependent on the bilinguals themselves, who establish congruent or equivalent categories based on the particular norms of the bilingual community. Accordingly, equivalence is not determined strictly on the basis of the syntactic structure of the languages involved, but the speakers use strategies to minimize non-equivalency by finding categories which they deem to be congruent. Thus, what is defined as equivalent will vary depending on the particular language pair and 'the nature of the community's bilingualism' (1998:8). Regarding the children in this study, there is ample evidence that their calquing output was most strongly affected by sociolinguistic variables, the most salient of which appeared to be status in the bilingual language mode. This can be conceptualized by a 'mixing stimulus', wherein status in the bilingual language mode constitutes the activation of a 'signal' to mix languages. Poplack's Equivalency Constraint (1980) states that code switching tends to occur in mixing situations when the syntax of two systems 'map' onto each other. Here I propose a "Non-equivalency Corollary" in which, under activation of the bilingual mode, when the syntactic systems do not 'map' onto each other, the result allows use of syntactic structure from one language, combined with morphemes from the other language. Calques, then, occur when the speakers re-classify non-equivalent structures as equivalent in order to accommodate or allow switching. This re-classification is seen as a response to situational pragmatic and sociolinguistic variables, i.e.

language mode and the prominence of one language in relation to another. I have labeled this the "Non-equivalency Corollary"; it is formalized below:

*The Non-equivalency Corollary:* Under the condition that bilingual or multilingual children are operating in the bilingual language mode, a 'signal' is activated which allows them to mix languages. In the event that a switch point is selected which would violate the Equivalency Constraint, grammatical categories may be re-classified as needed in order to establish equivalency. Resulting constructions thus allow lexical/morphological elements from one language to be combined with syntactic structure from another language which would not be allowed in the monolingual grammar.

This corollary can serve to explain the numerous counter examples to constraints on code switching which have been proposed over the years; bilingual norms of a variety of communities are allowed to overrule syntactic constraints which are based on the structure of the language pair involved. Calques can, therefore, be considered as a grammatical solution to the activation of a 'signal' to mix languages, in a linguistic environment where the Equivalency Constraint is violated. This corollary can help to explain the use of calques by proficient and non-proficient bilingual children alike, without attaching the stigma associated with language loss.

It is recognized that the 'selection' of a switch point is somewhat arbitrary. Current understanding in the code switching literature reveals that there are syntactic boundaries in sentences which are generally not the locus of switching (Gutiérrez-Clellen et al. 2009:109, adapted from MacSwan, 1999:54, see also Cantone, 2005). At the same time, why a bilingual would choose a given syntactic or morphemic switch point over another is a continual question and perhaps cannot be answered. Locus selection for switch points may be affected by the same kinds of variables that affect lexical selection such as triggering, gaps in lexical or syntactic knowledge, or Grosjean's most available word phenomenon (1982:151). This is a question which is beyond the scope of the current project, but presents itself as an area worthy of future investigation.

At this point it seems appropriate to comment on "constraints" and this corollary. Use of the term 'constraint' often implies a strict control or rigid adherence to a rule. For nearly all constraints that have been suggested in the literature in code switching, counter examples have been found. It is here suggested that perhaps the intent of 'constraints' ought to be more descriptive than prescriptive in focus. Poplack herself, in one of the earlier descriptions of the Equivalence Constraint states her proposal more tentatively than in later versions. She uses the words: "…code-switches will *tend* to occur at points…." (1980:586, italics mine). The Equivalence

Constraint, in spite of the many counter examples provided by later researchers, did capture the essence of a great proportion of code switching observed. The attempt to define a grammar for code switching, and provide 'rules' for the combination of two or more syntactic systems has been and continues to be a goal of research for many investigators. More recently, there have been some who maintain that there are no constraints except for those provided by the morpho-syntactic systems involved (MacSwan, 2000). In other words, they argue against the existence of a third grammar to be used in combining systems. The Non-equivalence Corollary is designed to describe trends in multilingual linguistic behavior, not rules of code switching grammar. The Non-equivalence Corollary is offered as a vehicle to explain the *interaction* of language mode and linguistic structure, and to understand the use of calquing outside the context of language shift, attrition, or incomplete acquisition. There will undoubtedly be exceptions found in other studies, but the intention here is to capture the essence of a switching phenomenon which appears to describe the use of calques in bilingual children.

## 5.3 Code Switching and a Developmental Perspective

### 5.3.1 Subgroup Profiles in the Acquisition/Proficiency Matrix

A goal of this study was to discern if there were patterns of code switching that were representative of subgroups of multilingual speakers. One perspective through which differences can be viewed regards whether or not development of bi- and/or multilingual competence is occurring typically. Typical development would characterize those speakers who were able to acquire a proficiency in the languages within a reasonable (specified) amount of time, (here considered to be the three year minimum for BICS competence). Referring to the acquisition/proficiency matrix, those speakers with profiles in cells 1 and 3 can be classified as typical speakers. Atypical development would correspond to those speakers who had been exposed to the language for a sufficient amount of time, but who had not achieved a satisfactory level of proficiency. Speakers within this group could include those with language learning disorders, here referred to as specific language impairment (SLI), and those who were experiencing either language attrition or incomplete acquisition, perhaps due to lack of maintenance of one of their languages. These speakers would be represented by cells 2 and 4 of the matrix. The third group to be described is the group of speakers who are still in the acquisition process (the [-BICS] group), and thus could not be expected to have achieved the same levels of proficiency as their more experienced peers. These speakers are represented in cells 5 and 6 of the matrix. Note that all sequential speakers would be expected to begin in cell 6. As they accumulate time and experience

in the language, and increased proficiency, they would be expected to move upwards and to the left, toward cell 4. Figure I. represents the three subgroup profiles that have been identified.

**Figure I. Profiles of 3 Subgroups in the Acquisition/Proficiency Matrix**

| | Proficient | Non-proficient |
|---|---|---|
| Simultaneous: Acquired | Typical | Atypical |
| Sequential: Acquired | Typical | Atypical |
| Sequential: Not Acquired | [ - BICS] | [ - BICS] |

One would expect that most speakers would fall into the typical group, and that is, in fact, the case; 23 of the speakers were considered 'typical'. In the atypical group, there were 8 speakers. There were also 8 speakers in the [-BICS] group. Two of the speakers in the [-BICS] group had managed to acquire enough language to be considered proficient before they had met the three year BICS minimum (cell 5). Although considered proficient based on test results, these two speakers' patterns of code switch type use conformed to patterns for the rest of the [-BICS] group still acquiring the new language, described below. It appears that acquisition profile, rather than proficiency, was a stronger influence on code switching patterns for these two speakers.

The distribution ratios of code switching subtypes displayed in Figure F will now be compared among and between the speaker subgroups. It should be noted that the distribution of switch types within the sample is based on elicited data, and therefore may not be well suited for comparison to distribution of code switch types in studies with naturally occurring data. In the typology section all code switches were analyzed regardless of elicitation condition. In this study, the code switched condition elicited significantly more intersentential switching than the baseline and bilingual conditions. This is likely related to the nature of the elicitation protocol in this study, wherein speakers were afforded both a narration and a question/answer session. In a pure narration task, the amount of intersentential switching may have been less, as there were fewer opportunities for discoursal switches. This suggests that activation of code switched mode, in conjunction with the question format, is likely to have stimulated more intersentential switching.

Calques were elicited in greater measure in the narrative format. Accordingly, one would not expect naturally occurring data to show the same ratio of intersentential to intrasentential switches, or to calques. So, the nature of the elicitation may have produced a different balance of calques, inter- and intrasentential switches than observational collection. Nevertheless, as will be seen in the following sections, a comparison of the distribution ratios for use of the three types reveals that typical, atypical and still acquiring speakers do not utilize the same patterns of use.

### 5.3.2 Patterns for Typical Speakers

Typical speakers are those who have acquired both languages and are able to speak them both proficiently. This group of 23 speakers represents successful bilingual acquisition and proficiency; therefore the patterns of this group will be considered as the standard to which other groups are compared. Distribution of the code switching subtypes for the simultaneous (cell 1) and sequential (cell 3) speakers are almost identical; there are near equal intra- and intersentential code switching ratios, with almost twice as many calques. This pattern represents a profile of code switching for typically developing multilingual children.

### 5.3.3 Patterns for Still-acquiring [-BICS] Speakers

Sequential speakers who have not fully acquired L2 (cells 5 and 6) were compared to those who have fully acquired. There are three salient features in the code switching patterns for [-BICS] speakers. First and foremost, they are the group *least likely to use any kind of switch*. Secondly, this group used no intersentential switches and almost no intrasentential switches (see Figure F). This was the case regardless of proficiency. No appreciable difference between proficient and non-proficient speakers in the propensity to switch was detected within the sequential, non-BICS group (cells 5 and 6), as there was only 1 token of intra- or intersentential switching for the 8 participants in this group. Finally, if any switching was used by this group, it was in the form of calques (with the exception of one intrasentential switch). It appears that there is a period during acquisition in which the learner is not comfortable, or perhaps, not competent with any type of switch. At some point toward the end of this 'silent period', many of the emerging bilingual speakers begin to mix their two languages in the form of calques.

### 5.3.4 Patterns for Atypical Speakers

Atypical bilinguals displayed much greater variability of distribution patterns within the group. Simultaneous non proficient learners (cell 2) had surprisingly similar patterns to the typical group. The ratio of calques used was slightly less, but this group still displayed an equally balanced amount of inter- and intrasentential switching. It is not known why these speakers had such similar

patterns to the typical bilinguals, even though their proficiency was lower. The number of speakers in this group was small (n=3), so meaningful conclusions are difficult to make. The most notable difference between the proficient simultaneous speakers in cell 1 and the non-proficient speakers in cell 2 was the greater total number of switches used by those in cell 2; they used 14.0 total switches per speaker compared to 6.84 total switches per proficient simultaneous speaker.

The other subset of atypical speakers, sequential non proficient learners who had acquired both languages (cell 4) presented a very different pattern. They were noted to use far more calques than any other subgroup, and the ratio of intersentential to intrasentential switch types was not equally balanced like the other groups; it was weighted to the intrasentential side. In fact, almost three times as many intrasentential switches were recorded as intersentential. This would contradict those findings which indicate that less proficient speakers use more intersentential switches than intrasentential (Poplack, 1980). However, the sample size was again small (n=5 for cell 4). In addition, two of the non proficient sequential +BICS speakers produced no code switches at all. Therefore the data in cell 4 were contributed by only 3 speakers. The low number of speakers makes it difficult to provide generalizable conclusions, but the apparent contradiction with Poplack's findings is notable.

There are two characteristics which highlight the difference between typical and atypical speakers. First, the atypical speakers in cells 2 and 4 switched at a higher rate than typical speakers. The rates for cell 2 have already been presented. If we combine the rates in cells 2 and 4, the average total number of switches for all conditions was 15.37 switches. For typical speakers, the mean number of switches was 5.56. One of the speakers in cell 4 used an extreme number of calques (43 in all). Even when calques are removed from the analysis, the atypical speakers still used a higher mean number of intra- and intersentential switches than typical speakers, 5.12 compared to 1.82. It appears that atypical speakers do not exhibit a hesitancy to switch which might be implied by studies that associate code switching with increased proficiency. Perhaps the speakers' strategies for language learning are also atypical in some way. So far we have seen that typical sequential learners do not switch in large measure during the [-BICS] period. It appears that the typical pattern is to listen for a long time before beginning to produce code switched utterances. It may be that atypical learners do not monitor language as well as typical learners. Perhaps they do not take full advantage of the 'silent period' and begin switching 'prematurely'. A second insight into the atypical profile is the fact that less proficient learners were more likely to use hybrid forms. Taking into account the fact that very few of the non-proficient non-acquired speakers switched at all (cell 6), we now see that the hybrid forms must have been contributed to the data set by the other non-

proficient speakers in the sample (cells 2 and 4). In fact, of the hybrid forms in the data set, 78% were produced by the non-proficient speakers who had (fully) acquired both languages, who have been described as atypical in their language development. Therefore, the use of hybrids in this study is associated with non proficient sequential acquisition. When one considers bilinguals who are not proficient, the presence of hybrids could possibly provide a marker to distinguish between atypical development (in cells 2 and 4) and incomplete acquisition (represented by cells 5 and 6).

The increased use of hybrids in atypical speakers appears to conflict with results of a study conducted by Gutiérrez-Clellen, Simon-Cereijido and Leone (2009) in which they compared frequency and type of intrasentential code switching for Spanish-English bilingual children with typical language development (TLD) to bilingual children with specific language impairment (SLI). They concluded that children with SLI used neither a greater number, nor a different type of code switches than their age matched TLD peers (2009:106). A closer look at their data reveals that the participants were sequential learners who had started learning English in preschool and had at the time of testing received two years of exposure to English. Such speakers would be classified in the current study as [-BICS], or not fully acquired, and as such would not fall into the typical group in the current analysis. It is no wonder that Gutiérrez-Clellen et al. found no significant differences between typical children and those with SLI; their definition of typical included speakers which in this study are considered to be still acquiring and have been shown to have a low propensity to switch in the first place. With regard to hybrid forms, Gutiérrez-Clellen et al. (2009: 101) report only one instance of what could be described as a hybrid. This also conforms to results for speakers in the current data set; hybrids were rarely used by the [-BICS] group (one token). It would be interesting to see whether the Gutiérrez-Clellen et al. SLI group would produce a greater number of hybrids with another year or more of exposure to English, or with elicitation of data rather than naturalistic collection. Although there are differences between Gutiérrez-Clellen et al. and this study with respect to level of acquisition, it is worth mentioning that, at least with respect to ratio of code switch types, the simultaneous non proficient speakers (cell 2) show almost the same distribution of types as their proficient counterparts. This appears to parallel the claim by Gutiérrez-Clellen et al. that there is no difference in code switching patterns between typically developing children and those with SLI[13]. The current study however, seems to imply that there may indeed be a difference

[13] I do not equate SLI here with the atypical bilingual proficient group. While SLI children do not display typical development, it cannot be stated that the atypical bilingual learners in this study have SLI. This will be discussed in a later section. The comparison here is intended to note that atypical and typical simultaneous speakers had similar patterns, in the same way that TLD and SLI speakers have been shown to have similar patterns.

in code switching behavior when sequential learners who have reached BICS competency are evaluated and compared to those who have not reached BICS competency.

If it is implicitly assumed that bilingualism is a desirable trait, then it is concerning that 8 children were classified as atypical. This group of children had an ample amount of time and exposure to learn language, but still performed at a non proficient level. It is not clear what could have caused these children to have atypical development. A look at language history provides an explanation for 3 of the children. One of the 8 children was an English L1 sequential learner of Swiss German. She was enrolled in Swiss public schools for the first year after her arrival to the country. Her parents reported that she 'did not do well' and they transferred her to an English speaking private school. From that point on, the only Swiss German input she received on a regular basis was from the community environment, since the language of the home was primarily English. It appears that her lack of proficiency in Swiss German is attributable to arrested or incomplete acquisition, as maintenance in Swiss German (L2) has not been provided. It is notable however, that this girl had two siblings who remained in the Swiss public school system and were proficient in both languages. There could have been some underlying reason for her apparent lack of aptitude in learning Swiss German; at this point it is not known what the reason may have been. Two of the remaining 7 atypical children were siblings who had learned English and Standard German simultaneously. These two children had acquired Swiss German sequentially as preschoolers. When they were approximately 6 and 3 years old, their parents divorced and their English speaking father moved out of the home. They maintained contact with him about 2-3 times per week. It seems that they were experiencing attrition and loss of English, in spite of the fact that they were attending a bilingual school which supported maintenance of English. There do not appear to be obvious explanations for the remaining 5 children. It could be suggested that perhaps these children had an inferior support system for both languages in the home or at school, perhaps related to parental attitudes or socioeconomic status, but 3 of the 5 remaining children had siblings who were proficient, and who presumably had attained proficiency under the same circumstances as their atypical siblings. All five of the remaining atypical children attended the bilingual school, which supported both languages. Socioeconomic status would also be ruled out as a contributing factor, since all subjects in this study came from families of upper middle to upper class status and income. Language dominance could have been a contributing cause, but the dominance (in terms of measured proficiency) was equally divided between stronger Swiss German skill for 4 of the children and stronger English for the other 4. With numerable extrinsic causes for atypical bilingual development having been ruled out, it appears that the remaining possibilities are intangible, and must be related to characteristics

intrinsic to the speakers themselves, such as personal attitudes toward bilingualism, and possibly to the ability to learn language.

Given that the atypical speakers have not demonstrated the ability to acquire one of their languages well, it seems a logical question to ask whether the lack of bilingual proficiency in the atypical group is attributable to SLI (also called language disorder or LD). It is generally considered that bilinguals must be impaired in both languages before they can be considered to be language disordered. Kohnert (2008:104) makes the statement: "For bilingual children with LD, the underlying impairment will manifest in both languages. Presumably, LD is due to some underlying inefficiency in processing language input. It will affect both L1 and L2." Though there is only a limited amount of research in the area, bilingual children appear to show the same kinds of impairment in both languages as language disordered monolingual speakers of each of the languages exhibit (Kohnert 2008*).* In the case of bilingual speakers in this study, language disorder must be ruled out, since none of the children in the sample presented with weak Swiss German and weak English skills[14]. The underlying reasons that the atypical speakers in this study have not become proficient are not well understood. It is clear that they do, however, display different patterns of code switching.

Regardless of the reason for the atypical group's difficulty in acquiring proficient bilingual competence, it appears that their divergent code switching patterns may help to identify some of them (that is, those that switch). Once identified, they can be targeted for extra maintenance and support, as long as we assume that bilingual proficiency is a goal. Perhaps extra stimulation in their weaker language could help motivate and encourage them in ways that might improve whatever intangible factors have contributed to their lack of mastery of the weaker language.

### 5.3.5 A Developmental Sequence for Code Switching

Sequences of development in code switching use have been suggested by a few researchers (Kwan-Terry, 1992, Vihman, 1998), and were introduced in Section 2. Kwan-Terry's sequence was primarily focused on the role of code switching as a facilitating strategy in simultaneous bilingual lexical acquisition. Vihman described the development of code switching discourse in simultaneous

[14] There was one child tested who was non proficient in both languages, and could be considered to have SLI. He is the same child who was noted in section 3 to have highly divergent results from the rest of the corpus, whose results were set aside for separate review, and thus was not included in the statistical analysis for this study. In addition to not beginning to speak until he was 4 years old, he was learning 5 languages. The results of his code switching are similar in some ways to the atypical group defined here, in that he used considerably more intrasentential switches (17) than intersentential (6), had a high number of hybrid switches (6), and his overall frequency of switching was high (20 total switches). He differed from the atypical bilingual group in that he used less than the mean number of calques for that group (3, mean for atypical: 10.12). These preliminary findings would suggest that he displayed patterns of code switching that differed from typical bilingual speakers, in contrast with the results of Gutiérrez-Clellen et al (2009:106).

bilingual children as dependent on linguistic maturation and the existence of pragmatic (sociolinguistic) conditions (1998:75). To review, she outlined the following stages: first, infant bilinguals displayed early use of both languages. In the next stage, with increased syntactic and lexical development, the child became sensitive to the language of the interlocutor, and mixing tended to decrease. Progress into the third stage was dependent on the child continuing to receive maintenance and support in both languages. If this condition was met, the child would begin to use adult-like code switching, using word order and system morphemes from the matrix language. Vihman reported that the children used some structures at this stage that were "immature" compared to adult code switching, such as switching of the matrix language in mid-utterance, for example. When the child reached school age, an increased frequency of longer switches was noted, especially for formulaic phrases such as idioms (Vihman, 1998:75).

The above studies were both individual or small group longitudinal case studies of bilingual children acquiring both languages simultaneously. This study has examined cross-sectional data for a variety of acquisition types and proficiency levels. The simultaneous speakers in this study were all 5 years of age or older and thus had all received a minimum 3 years of exposure in both languages by the time they were evaluated for this study. Therefore, since they had all fully acquired BICS competence by the time of this study, it is not possible to view the acquisition of code switch use for simultaneous learners in a developmental way. However, patterns of code switch use for the 23 sequential speakers in the corpus provide insight into the acquisition and development of code switching for these speakers. At this point, I can tentatively submit (at least for this language pair) that a typical pattern of development for code switching in sequential multilingual children is as follows: for the first period, the learners are not likely to switch. In the second period, as they become more proficient in the languages, they begin to use calques when they are in the bilingual mode. Data from the study demonstrated that activation of the bilingual mode in the elicitation task increased use of calques in both bilingual and code switched conditions, for speakers who had acquired both languages. Activation of bilingual mode was not effective in eliciting calques for those who were still acquiring (the [-BICS] group), with the exception of two participants. These two were, in fact, the two [-BICS] participants who had been found to be proficient, even though their exposure to the L2/L3 was less than three years. In the third period, further development brings increased numbers of intrasentential and intersentential switches. For individuals developing typically, the ratio of intra- and intersentential code switching is approximately equal, with a higher percentage of calques being employed. For individuals who are not developing typically, we note that like the typical speakers, they use a high number of calques. It is difficult to make further generalizations regarding distribution of code switch types for this atypical group, since the sample size is low, but it

appears that these sequential learners with atypical development tend not to use a balanced number of intrasentential code switches compared to intersentential. A much larger percentage of hybrid forms are used as well. For all types of speakers, when code switching is employed, calques are always the most prominently represented subtype of code switching used, although the relative amount of calquing decreases as other types of code switching emerge.

## 5.4 Identification/Differentiation of Atypical Speakers

We can apply what we have learned about the developmental sequence of code switching to the classroom or clinical setting. When presented with a child that is not proficient, it can be difficult to differentiate between the child who is simply still acquiring the second language and a bilingual child who has not acquired the second language in a typical manner. If a child has acquired the language (according to the 3 year BICS minimum) and is still non proficient, this would be an indication that the child is not a typical learner. Here I suggest that observed patterns of code switching may be used to differentiate between the two types of learners and identify those who are atypical.

This section is, in a sense, a restatement of the principles in section 5.3.5, but is presented here from the perspective of the educator. If a child is identified as non-proficient, the educator or clinician must discern the etiology of the lack of proficiency, so that an appropriate educational plan can be developed to meet the needs of the student. Clearly, it would be a mistake to assume that a child who is atypical in his or her development simply needed 'more time'. Without focused intervention of some sort, the child would be likely to fall further behind, not to catch up. It is for the atypical language learner that timely identification is crucial.

If code switching can be elicited for non proficient speakers in question, their patterns can potentially provide clues regarding the child's bilingual developmental status. There are three variables which can help to characterize subgroups of non-proficient speakers: propensity to switch, presence or absence of hybrid forms, and balance (ratio, distribution of code switching types):

### 5.4.1 Propensity to Switch

If the child is not proficient and not switching, he or she is most likely to be still acquiring (cell 6). These children are not generally considered to be at risk for atypical development. However, there is always the possibility that the child is one of a small percentage of non-proficient speakers who choose not to switch (cell 4). Conversely, a speaker who has had less than three years of exposure to L2 who is switching frequently would also be considered atypical. This child could be progressing from cell 6 toward typical development (cell 3) or could be moving in the direction of

cell 4, atypical development. Atypical children who had acquired L2 were noted to switch at a higher rate than their typical peers. In the case of higher than average switching, further investigation would be warranted to identify language attrition or unbalanced language input (and possibly SLI, see footnote 4) as contributors to the child's lack of proficiency.

### 5.4.2 Hybrid Forms

A child who is not proficient and is switching is most likely to be atypical in their development. Children in this group, who have acquired L2 but are still not proficient, are also the most likely to use hybrid forms. In fact, there were very few participants in the study that used hybrids who were not in the atypical group. The data suggest that hybrids of the intramorphemic form seem to be even more closely associated with atypical development than stem + affix forms. Use of hybrids in children who have acquired L2 can prove to be a red flag which can identify those who need assistance and support in attaining or maintaining bilingual proficiency.

### 5.4.3 Distribution of Code Switching Types

Preliminary data have identified a pattern of distribution for the 3 code switching types which appears to be reflective of typical bilingual/multilingual development. For data elicited in this study, typical ratios consisted of roughly half or slightly more than half of the switch types being calques, with the remaining intra- and intersentential switches being approximately equally balanced. Even non-proficient simultaneous speakers (cell 2), displayed this pattern of code switch type distribution. This description applies to speakers who have acquired the language, according to the working [+BICS] definition for the current study. Therefore, if a non-proficient child with [+BICS] does not show the typical pattern of distribution of code switch types, a closer look would again be warranted. A child in this category who used either more intrasentential switches than intersentential switches, or who used a much higher ratio of calques[15] could be considered for further screening, since these patterns are reflective of the kinds of differences in the non-proficient, [+BICS] group (cell 4). Review of the child's acquisition history could provide insight into possible lack of support in one or both of the languages.

[15] There were three children in this study who used a very high number of calques; more than one standard deviation above the mean. Two of these were the siblings previously mentioned whose English speaking father no longer lived in the home. The other was a simultaneous learner who had briefly attended a monolingual English pre-school, but had been in the Swiss public schools for many years. He was one of the oldest participants in the study (aged 12-7), and appeared to be identifying more with his adolescent Swiss German peer group than his bilingual home environment. Very high incidence of calques combined with consideration of their acquisition history suggests that these three children were experiencing attrition of English.

For speakers still in the acquisition process, [-BICS], the typical pattern is to use few, if any switches. When speakers at this stage of acquisition use code switching, it is almost exclusively in the form of a calque. A non-proficient speaker who has not achieved BICS competence, if observed to use any type of switching besides calques (intra- or intersentential switching), would be displaying a pattern of use which is not typical. This too could signal a need for screening or further investigation, as it must not be presumed that the lack of proficiency is exclusively a result of ongoing acquisition. In this case it could be possible to identify children at risk for language impairment, or those in need of supplemental L2 input during the acquisition process, rather than waiting until normal acquisition should have been achieved. As sequential learners acquire increased bilingual proficiency, the use of calques seems to decrease, while the amount of intra- and intersentential code switching increases.

In this study, language mode was carefully controlled, and there was very minimal incidence of code switching in the monolingual baseline condition. What has not been investigated in this study, (since it did not occur) is intra- or intersentential switching while the speaker is in monolingual mode. This is considered something different, since the speaker is violating a sociolinguistic convention that the mode of discourse should match that of the interlocutor. Switching while in monolingual mode ought also to be considered a flag which directs the educator to take a closer look at the speaker's bilingual development.

# *Section 6 – Conclusion*

The purpose of this study was to determine whether code switching could be elicited in bilingual children under experimental conditions, and to see if there were patterns of code switching use that could be associated with different subgroups of bilingual children based on proficiency or acquisition types.

## 6.1 Elicitation

The present study has demonstrated that it is possible to elicit code switching in school aged bilingual children under experimental elicitation conditions. Implications for those who do research in the area of code switching are obvious. The current elicitation protocol successfully provided a method of data collection which overcomes some of the difficulties mentioned in sections 1.2 and 1.3. Incidence of code switching was increased. The amount of time required to collect and analyze the data was greatly reduced in contrast to studies such as those mentioned in Table 2. The design of the project allowed for comparison of elicited data to a baseline condition, which enabled quantitative analysis of the effectiveness of the elicitation protocol.

Results were presented and discussed in detail in sections 3.3 and 3.4. The elicitation protocols in this study successfully elicited code switching in bilingual school-aged children. Both experimental conditions, bilingual elicitation and code switched elicitation, were effective in significantly increasing the amount of intrasentential code switching in the children. The bilingual condition was significantly effective in eliciting calques, especially in narratives. The code switched condition was effective in producing a significantly higher number of intersentential code switches, especially in the question format. This suggests that intersentential switches can result when the speakers are more consciously aware of the mode of discourse, and when the discourse provides the turn-taking context in which to switch between sentences or utterances.

Narrative and question formats were part of both the bilingual and code switched protocols; narratives produced a greater number of calques, but for intra- and intersentential code switching there was no difference in the number of switches elicited. Considering that elapsed time was significantly less for questions, yet the yield of code switching data was nearly equal, it appears that the question format alone could be an attractive option when selecting an elicitation technique which is effective and simultaneously time efficient.

According to what type of language contact phenomenon a researcher was interested in examining, a subset (or variation) of the protocols in this study could be used. The researcher is provided with options when it comes to collection of data – something that has been especially difficult in the area of code switching research.

## 6.2 Bilingual Mode Theory Revisited

Data in this study provided validation of Grosjean's bilingual mode theory (1985c, 2001, 2008). In both experimental conditions, the bilingual mode was activated, and all subtypes of switching increased. It is not clear whether there exists a true code switched mode, as differentiated from bilingual mode. The first experimental condition, labeled 'bilingual', did not model any code switching with the exception of two intersentential switches, yet there was a yield of all types of code switches. Although explicit modeling of single word, phrase and intersentential switching was provided in the code switched mode, it did not elicit significantly higher amounts of calques or intrasentential switches than the bilingual mode. The code switched mode did appear to successfully elicit significantly higher amounts of intersentential switching. It was noted that even though some types of switches, specifically calques, mazed switches and hybrid forms were *not* modeled, they were nevertheless elicited. Thus, it appears that modeling of specific types of code switching does not elicit specific types in response, with the possible exception of intersentential switches. Rather, the strongest statement that can be made is that perhaps modeling of the mode of bilingual speech that contains code switching may elicit code switching *in general*, and that specific subtypes are not as sensitive to modeling as the mode itself. Further studies are necessary to answer the question regarding whether a code switched mode exists in addition to, or as a subset of, bilingual mode as described by Grosjean.

## 6.3 Typology

The second goal of the current study was to see if different subgroups of bilingual speakers used different subtypes of code switching. The bilingual children were divided into subsets based on their acquisition type (simultaneous/sequential) and whether or not they were considered to be proficient in both languages. It was reasoned that if the subgroups did indeed have different patterns, then this information could be used to inform us about the role of code switching in bilingual language competency.

Results were presented and discussed in detail in sections 4.3 and 4.4. The use of two subtypes of intrasentential code switching (single word and hybrid switches) appeared to be related to acquisition type or proficiency in bilingual children. Greater use of single word switches was associated with simultaneous learners. These results suggest that simultaneous learners may have a different type of lexical access than sequential learners, thus making them more sensitive to subtle differences in word meanings and resulting in more discrete word choices between the languages available to them. Increased incidence of hybrid forms was associated with less proficient bilinguals. Some hybrids, notably a stem in one language combined with an affix in another language, seem to recur in child code switching data. Other hybrids, here called intramorphemic and false cognate switches, appear to be less commonly occurring, and could potentially represent 'error' forms. These results indicate that detection of hybrid forms in the language of bilingual children could provide a cue which could 'flag' those who may need assistance and support in maintaining or fully acquiring their weaker language.

Contrary to the results reported by Poplack (1980) and others, less proficient speakers did not produce more intersentential code switches, nor did proficient speakers use a greater number of intrasentential code switches. Calques were the most frequently used type of code switching for all conditions. Neither intersentential code switching nor use of calques was significantly related to strength of bilingual proficiency or type of acquisition. These two types of switches did appear to be significantly affected by the elicitation condition. There was also a subset of mazed switches, here called rephrasing-type mazes, which appeared to increase under the same elicitation conditions as intersentential switches. This implies that rather than a reflection of proficiency, increase or decrease in use of these types is evidence of the sensitivity of multilingual children to sociolinguistic variables such as language mode. The bilingual mode and narrative format increased incidence of calques, and the code switched mode and the question format elicited increases in intersentential and rephrasing-type mazed switches. The importance of establishing the speaker's mode along the bilingual/multilingual continuum must not be underestimated when one analyzes the code switching patterns children employ.

## 6.4 Implications and Application of Patterns Detected

The results of this study have been contrasted with studies associating the use of calques with attrition of L1. While the current study does not dispute that fact that calques are associated with language attrition and language shift for many speakers, one must be cautious not to presume that presence of calques must categorically imply that attrition is ongoing. In this study, the same

speakers who used few calques in monolingual mode were noted to use more calques in bilingual and/or code switched mode. It was noted that attrition studies focused on the appearance of calques in the speech of children operating in an L2 dominant environment (Schmitt, 2000, Bolonyai, 1998). In the current study the speakers were first observed in the monolingual end of the language mode continuum, wherein the activation level of L2 made it less dominant. With the subsequent activation of the bilingual mode in trials 2 and 3, it is reasoned that the dominance of L2 was increased. This 'dominance' can be viewed as temporary, or contextually derived, and as such may produce calques that reflect a short term dominance based on language mode, rather than the dominance that manifests in the case of true attrition and language shift. In this context, situational dominance was renamed 'prominence'.

It was suggested that calquing may be a linguistic strategy for multilinguals in situations where the syntactic structures of the languages do not 'map' onto each other. Driven by an incentive to switch, conditioned by status in the bilingual mode, the bilingual then produces a calque. The Equivalence Constraint (Poplack, 1980) stated that code switching could occur in situations where the syntactic structure of the languages provided switch points. It was suggested in this study that calques are produced when the speaker has an incentive to switch but the syntactic structures do not provide a locus for intrasentential code switching. Calquing can result from a strategy to mix language in the bilingual mode when the Equivalence Constraint is not met. In this context, non parallel syntactic structures are allowed to be re-classified as equivalent in order to provide switch points. This suggestion was referred to as the Non-Equivalence Corollary.

Patterns of code switching type use suggest that there are profiles of code switching that can be associated with three subgroups of bilingual children: those who are still in the acquisition process, those who are typically developing, and those who display atypical development. These profiles have led to the proposal of a linguistically based developmental sequence of structures in code switching for children who are sequential learners. First of all, there will always be some speakers who for (possibly unknown) psychological or sociological reasons will not switch code under any circumstances. For those who do switch code, the sequence is proposed as follows: in the first stage, lasting from one to three years after introduction of the second (or third, etc.) language, the child is unlikely to switch at all. This could be called a 'silent period' for code switching. After this stage, the child may begin to use calques. This second stage will usually see few, if any, other types of intra- or intersentential switches. After the child has reached BICS competency for the new language, (approximately three years), he or she will be more likely to display a greater variety of

code switch types in oral language when in the bilingual mode, including continued use of calques, and increasing use of intersentential and various types of intrasentential switches.

## 6.5 Directions for Further Investigation

This research has been conducted with a particular set of languages in a particular language environment in Switzerland. As such, the conclusions which have been made are affected by the sociolinguistic norms and expectations of the community in which the data were collected. There are certainly different linguistic communities which may have less restrictive (or more restrictive) sociolinguistic rules regarding code switching, and replication of a study such as this one could potentially have different results. It would be of interest to repeat all or parts of this study with other language pairs, or to examine Swiss German-English bilinguals living in an English dominant environment.

Some restructuring of the methodology could be done to see if using the question portion of the protocol alone would improve efficiency of the elicitation, both in terms of time expended and data yield. It is recommended that further studies examine more closely whether elicitation of calques is increased by the simultaneous activation of bilingual mode and the introduction of particular kinds of non-parallel syntax in the stimulus stories. This could either disprove or provide validation of the Non-Equivalence Corollary for code switching.

Because certain profiles of bilingual children were associated with particular types of code switching, it ought to be possible to identify individuals who are experiencing difficulty in the acquisition process and differentiate them from those who display typical bilingual development, based on their code switching patterns. This could ultimately lead to creation of an assessment instrument which will elicit code switching and based on types elicited, be able to identify bilingual children with atypical development or language disorder, with the goal of distinguishing them from typical bilingual children.

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# *Section 8 – Appendices*

## *Appendix A – Acquisition History Questionnaire*

Name _____

What language(s) are spoken at home? Mother_____

Father _____

Third, fourth languages: _____, _____

Are both parents in daily contact with the child? _____

If not, at what age/ how long ago did daily contact end? _____

First language(s) of the child: _____

At what age was the second (third, fourth) language introduced? _____

Describe when the child hears which language at home:

Since when has the child had constant exposure to more than one language?

a. Birth _____
b. Age: _____

School experiences: _____ monolingual Describe: _____

_____ bilingual Describe: _____

Notes:

# *Appendix B – Teacher Proficiency Questionnaire*

*Name* _____

1. How would you describe this child's Swiss German?

| Excellent (mother-tongue) | occasional errors | average so – so | frequent errors | poor |
|---|---|---|---|---|
| 5 | 4 | 3 | 2 | 1 |

2. How would you rate the speaker in the following areas?

| | | | | | |
|---|---|---|---|---|---|
| Vocabulary | 5 | 4 | 3 | 2 | 1 |
| Grammar | 5 | 4 | 3 | 2 | 1 |
| Accent (Aussprache) | 5 | 4 | 3 | 2 | 1 |

3. When speaking Swiss German, does the speaker….

| | | | |
|---|---|---|---|
| ….use English words? | never | occasionally | often |
| ….use 'funny' word order? | never | occasionally | often |
| ….pause, as if searching for a word or phrase? | never | occasionally | often |

# *Appendix C – Code Switched Mode Introductory Script and Questions*

*Swiss German in italics*, English in normal font, [translation in brackets]

Introductory remarks:

"*Hoi, kännsch du mich?* I'm (name). *Ich tue hüt* Mrs. XX helping.[16] I didn't hear the *G'schicht*. *Chasch mer si ächt verzelle? Eifach so wie du scho* did with Mrs. XX. *Du chasch jetz* start."

["Hi, do you know me? I'm (name). Today I'm helping Mrs. XX. I didn't hear the story. Can you tell it to me? Just like you did before with Mrs. XX. You can start now."]

[16] There was disagreement among adults regarding grammaticality of this item. Though this was the form the child informants produced as their code switched translation of the English, each of the native Swiss teachers had a different opinion. The teacher of 9 year old students identified it as 'sounding strange' and offered the following version: "*Ich tue hüt* Mrs. XX *hälfe."* (All Swiss German with 'Mrs. XX' produced in English with English phonology). The other teacher taught younger 5-6 year olds and thought that the students' version could occur in natural conversation. She also offered the following variant: "*Ich tue hüt* Mrs. XX help*e/hälpe."* Note that the options for the final word are hybrids: either an English root with the Swiss German verbal affix, or a mixed (intramorphemic) root '*häl..e'*, with an English morphemic particle 'p'. Since there was no clear choice, it was decided to use the form which the children themselves had suggested.

## *Appendix C, continued*

Comprehension Questions:

1. *Was isch* inside the surprise *Päck gsi*?
   [What was inside the surprise package?]

2. What did Mike say to the *gross Frosch won är dä chli Frosch* bit on the leg?
   [What did Mike say to the big frog when he bit the little frog on the leg?]

3. What did the big frog do to the baby frog *wo die beidi ufem Rügge* of the turtle *gsässe sind?*
   [What did the big frog do to the baby frog when they were on the back of the turtle?]

4. What did the big frog do to the baby *Frosch wo sie ufem Boot gsi sind?*
   [What did the big frog do to the baby frog when they were on the raft?]

5. *Wie hät de Mike* found out that the baby frog was gone?
   [How did Mike find out that the baby frog was gone?]

6. Why was the big frog mean to the baby frog?

7. *Wieso hät dä gross Frosch dä chli is Bei bissä?*
   [Why did the big frog bite the little frog on the leg?]

8. Why didn't the big frog go home *wie är hät söllä?*
   [Why didn't the big frog go home like he was supposed to?]

9. *Wieso isch dä gross Frosch glücklich gsi am Afang* that the baby frog was gone? [Why was the big frog happy at first that the baby frog was gone?]

10. Why did the big *Frosch* promise to be nice to the baby *Frosch* from now on?
    [Why did the big frog promise to be nice to the baby frog from now on?]

# *Appendix D – Sample Subtest Items From English Proficiency Tests*

(from Hubbell-Weinhold, 2005: Appendix 1)

*Sample items for each subtest of the TOLD:2P (Newcomer and Hammill, 1988), TOLD: 2I (Hammill and Newcomer, 1988) and TOAL: 3 (Hammill, Brown, Larson and Wiederholt, 1994)*

*TOLD: 2P*

| | |
|---|---|
| Picture Vocabulary: | "Show me (point to) the mirror". Child selects one of four pictures. |
| Oral Vocabulary: | "What's a bird?" Verbal response required. |
| Grammatic Understanding: | "Show me the picture that matches, 'She went quickly'." Child selects one of three pictures. |
| Sentence Imitation: | "Say what I say: 'Her friends walked to school'." Child repeats verbatim. |
| Grammatic Completion: | Child fills in the blank. "A lady likes to drive. Every day she _____." |
| Word Discrimination: | "Listen carefully: cat – can. Are they the same or different?" |
| Word Articulation: | not used for this study |

*TOLD: 2I*

| | |
|---|---|
| Sentence Combining: | Child is to make one sentence out of two to four sentences presented auditorally. "I like cake. I like ice cream." Child responds, "I like cake and ice cream." |
| Vocabulary: | "I am going to say two words. Tell me whether they mean the same, are opposites or neither: automobile…car." |
| Word Ordering: | Child listens to words presented in random order, makes them into a meaningful sentence. "Picked, some, we, flowers." Child responds: "We picked some flowers." |
| Generals: | Child is instructed to tell how a set of words is alike. "Red, brown, green." Child responds that they are all colors. |
| Grammatic Comp.: | Child tells whether a sentence is correct or incorrect. "He drinked the cola." Child responds: "Incorrect." |
| Malapropisms: | Child listens to a sentence which contains a mistake, and is asked to give the correct word. "Shakespeare wrote beautiful poultry." Child responds: "Poetry." |